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Worldwide Report

TELECOMMUNICATIONS POLICY, RESEARCH, AND DEVELOPMENT

FBIS

FOREIGN BROADCAST INFORMATION SERVICE

4 NOVEMBER 1986

WORLDWIDE REPORT
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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HONG KONG

BRIEFS

SUPERTELEX INTRODUCED--CABLE and Wireless, which has a virtual monopoly on the supply of telex machines, is introducing an updated version, Supertelelex 2021, through a campaign using four large-size print advertisements. The product launch is clearly part of Cable and Wireless's answer to the increasingly popular facsimile transmission, which nevertheless retains the advantage of being able to transmit graphics. But Jeremy Green, account director of Ted Bates, Cable and Wireless's advertising agency, while admitting facsimile transmission has affected the telex business, said it was not the reason the company has decided on the campaign. "It is simply that the product was not available before," he said. Supertelelex offers a big improvement on the old machine. It has done away with the messy tape and acts more like a word processor, enabling corrections to be made on the screen. Cable and Wireless claims to have supplied all but 400 of the existing 27,000 telex machines in Hongkong. [Excerpts] [Hong Kong SOUTH CHINA MORNING POST in English 19 Sep 86 Supplement p 3] /12379

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VIETNAM

BETTER SIGNAL EQUIPMENT DESIGNED BY LOCAL ENGINEERS

Hanoi QUAN DOI NHAN DAN in Vietnamese 19 Aug 86 p 2.

[Article by Quang Dau: "A New Face of the San Diu Tribe"]

[Text] According to the state electronics program, the manufacture of channel couplers is urgently required by the realities of combat and production. The theme bearing the 48-04-05-04 symbol has been implemented at the M3 Factory of the Signal and Liaison Command. One of the authors of this apparatus is Sen Cpt Luu Thi Kim Van, a member of the San Diu tribe. The GK-3 apparatus won the gold medal at the 1985 national economic and technical exhibition and was recently rated rather high and awarded the category 2 quality seal by the State Technical Inspection Commission.

According to Lt Col Vo Dang, director of the M3 Factory, while launching a campaign along Route 9 in southern Laos during the anti-U.S. resistance, he and his comrades-in-arms wanted to hide a V803 apparatus (a Hungarian-made piece of signal equipment) quickly in a cave to avoid the enemy bombers' attack but found no means of getting it through the mouth of the cave because it was too cumbersome, and also together with its accessories rather heavy. In view of the situation in Vietnam, it has thus been necessary to update this equipment to suit it to the conditions of mobile field combat. Therefore, ever since 1981, the 48-04-05-04 program has been implemented with the technical cooperation of Pham Ngoc Thu, MS, of the Signal and Liaison College. At the M3 Factory, a group of engineers led by engineer cum deputy director Mai Dang urgently started designing a new apparatus.

I asked engineer Luu Thi Kim Van to tell about the innovations she had effected in designing the GK-3 apparatus. She said:

"To reduce the cost, we kept some parts of the V803 apparatus intact and redesigned only four other parts. I assumed responsibility for the automatic adjustment system and the selective network. It must be noted that in a signal apparatus, the selective network presents relatively great difficulties, especially because our country lacks many essential materials such as ferrite. Therefore, it is more difficult to master this part."

[Question] "As a matter of fact, you have mastered the selective network?"

[Answer] "Yes, we made some definite progress during its manufacture...."

Ao San Hamlet (Thanh Cong Village, Pho Yen District, Bac Thai Province) was situated on a low hilly land with a dry and infertile soil and a score of thatch-roofed earthen-walled cottages. It was there that Kim Van was born and grew up. She is a halfcaste; her father was a San Diu tribesman and her mother a Vietnamese. She was endowed with what people usually call "innate intelligence." She attended school straight from the primary class to Grade 10 and always ranked first or second in her classes. She ranked first in the 1970 graduation examination from the level 3 general school of Pho Yen. Then, on hearing that the provincial student recruitment commission chose her for further study abroad, this pretty, nubile girl was on tenterhooks while all the inhabitants of her poor hamlet were filled with joy. The village patriarch said: "Our ancestors knew only how to whittle a curved piece of wook to make a plow to till the wet ricefields. Today, our children know how to make a sophisticated machine. How glad we are to see that!"

Luu Thi Kim Van went on saying: "Luckily, I was admitted to one of the oldest technical colleges in Hungary--the [Kandokiman] College--and my graduation thesis dealt with designing a system which would automatically adjust the electric current intensity in carrier-wave signal apparatuses. In early 1976, I was assigned to the army and worked at the M3 Signal Equipment Factory. The theme for the GK-3 channel coupler was similar to what I wrote in my former thesis. At that time, I made calculations on paper; now I had only to perfect them and turn them into reality. This coincidence was really interesting and could be considered a stroke of good luck. The GK-3 was more advanced than the V803 because semiconductor circuits were replaced by microcircuits, which made it possible to meet with certainty the initial requirements about small size, neatness, mobility, stability, and greater reliability."

Luu Thi Kim Van added: "You know, we toiled and toiled with the set of frequency selectors and converters for more than half a year. At first, I calculated according to the mobile parametric method but found that the result was not highly accurate so I switched over to the wave control method which was more complex. Another difficulty was that we did not have the needed materials. For example, we had to redo almost everything from the start just because of the need to replace the quartz selector set by an induction system. In the daytime, I came to the factory to do the principal tasks in the technical bureau. At night, it was quieter so I could devote all my efforts to the GK-3. Of course, I was not the only one who worked hard. Mr De was in charge of audio frequencies, Messers Trac and Tien created carrier wave frequencies, and Mr Ket handled the metering system. All of them took pains to do their jobs. But the result obtained so far has filled us with great joy so we forget all hardships and are even ecstatic about it. At present, we are continuously working to perfect the GK-3 to improve its quality, and we are designing multichannel couplers such as the GK-12."

Out of curiosity, I asked: "How about your family affairs--your husband and children? Do they hamper you?"

Kim Van laughed and shook her head: "No, my children are growing and their maternal grandparents have lent me a hand. As for Thao, my husband, he is also an engineer at the factory. He was my former schoolmate at the [Kando] College."

There is much more to say about this woman engineer. She was admitted to party membership while enthusiastically researching and designing the GK-3. She held the emulation combatant title for many years and was a representative of the young generation in the Signal Service at the Youth Union national congress.

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CANADA

TASK FORCE ON BROADCASTING POLICY ISSUES REPORT

Criticism of Private Broadcasters

Toronto THE GLOBE AND MAIL in English 23 Sep 86 pp A1, A2

[Article by Edward Greenspon]

[Text]

Here are highlights of the Task Force on Broadcasting Policy:

- Creation of an all-news channel by the CBC to be carried on the basic cable service and financed through advertising and a 25 cents a month charge to cable subscribers. This would raise about \$20-million a year.
- Gradual phasing out of foreign programming on the CBC with an ultimate goal of 95 per cent Canadian content. The loss of commercial revenue could reach as high as \$140-million.
- Creation of a new channel on cable called TV Canada to show more programs devoted to the regions, children, arts, documentaries and repeats of the best Canadian programs shown by other broadcasters.
- Tougher regulation of private broadcasters to ensure better quality Canadian programming and increase Canadian content between 7 p.m. and 11 p.m. to 45 per cent.
- Extension of CBC services for native peoples as well as franco-phone services outside Quebec and CBC Stereo radio service.
- A 5 per cent tax on the sale or rental of audio and video cassettes, VCRs and satellite receiving equipment.
- To encourage commercial support for Canadian programs, a 150 per cent business tax deduction for advertising on domestic children's,

drama, documentary, variety and performing arts shows. The cost will not exceed \$20-million a year. country's cultural fabric, according to the Task Force on Broadcasting Policy.

"The contribution of private Canadian broadcasters to quality Canadian performance programming has not been among the great elevating successes of the Canadian broadcasting system," the long-awaited report says.

The task force, headed by Gerald Caplan and Florian Sauvageau, places as much blame on regulators as it does on the industry.

The Canadian Radio-Television and Telecommunications Commission has coddled and protected private broadcasters, the task force says, and the public airwaves often are treated as if they are private property.

The task force did not hear any pleas from broadcasters to relieve the industry of regulation and let free markets prevail, its authors noted.

The report's 65-page chapter on private TV reveals a great deal of new information on the financial state of Canadian broadcasters. It confirms the judgment that television is a licence to print money.

Even during the recession, the printing presses hardly missed a

turn as virtually all the country's 79 private stations returned profits to their owners.

Television revenues nearly doubled to \$698.5-million a year between 1979 and 1984. In 1984, TV broadcasters took home \$163.3-million in pre-tax profits, about two-thirds of it by the country's 13 biggest stations.

The robust performance of the industry is aided considerably, the report says, by two government and regulatory policies that reward broadcasters without demanding anything in return.

First, the federal government's 1976 ruling that Canadians advertising on U.S. border stations cannot deduct the expense off their taxes as they can if advertising in Canada, adds between \$35.8-million and \$41.8-million a year to television revenues, the task force estimates.

Secondly, the practice of simulcasting — allowing Canadian stations to substitute their signals and commercials for U.S. ones on cable when the same show is broadcast on both channels — adds another \$53-million a year to broadcasters' coffers.

The report says the two measures are counter-productive to Canadian programming, but endorses their retention for commercial reasons.

The industry also is protected by several CRTC practices that the task force suggests contradict the federal Broadcasting Act. These include the CRTC's refusal to hear competing bids when broadcast licences come up for renewal; the fact that a television licence has never been revoked, regardless of a broadcaster's record in meeting obligations; and the commission's unwillingness to entertain other bidders when a broadcaster wishes to sell a licence.

Though private broadcasters have "the lion's share of resources in Canadian broadcasting," they spend far less than the Canadian Broadcasting Corp. on Canadian programming, the task force says.

The private broadcasters spend six times as much as the CBC on foreign shows.

Most of the foreign programs are U.S. feature films or TV series, while the Canadian content on private stations is made up largely of news, public affairs and sports. Canadian dramatic productions get short shrift, the task force says, receiving one in seven dollars spent on these types of programs.

"It is not, and never has been, a question of English Canadians being offered their own attractive and well-financed Canadian programs and rejecting them."

The licensing of new independent stations in many cities has not improved the situation at all, the task force says. They were found to be even more reliant than CTV affiliates on foreign programming.

The private broadcasters are motivated understandably enough by economics, the report says.

The general rule of thumb is that it costs 10 times as much to make a Canadian show as to buy an American one. Even if Canadian shows are popular with their audience "the business-like thing to do is to import."

The key regulatory issue, the task force says, is where to strike the balance between such business-like decisions and the public's right to expect quality Canadian programming in exchange for granting broadcasters the use of public frequencies and protection from competition.

The task force raps the knuckles of the CRTC for not being tough enough in its defence of a distinctly Canadian broadcast system.

Most of the necessary regulations for more quality Canadian programming in peak viewing hours exist, but are not implemented, the report says.

"The task force is in full and enthusiastic agreement with the CRTC's policy. But is the CRTC?" the report's authors ask.

The task force is particularly concerned by a dearth of Canadian

programming between 7 p.m. and 11 p.m. The CRTC defines prime time as the hours from 6 p.m. to midnight, allowing broadcasters to put most of their 50 per cent Canadian quota on during the less popular first and final hours.

The task force would cut down on that practice by insisting that at least 45 per cent of the 7 p.m. to 11 p.m. period be devoted to Canadian programs.

In addition, the report recommends a narrower definition of what constitutes a Canadian program.

The task force wants the CRTC to require broadcasters to meet indi-

vidual minimum standards on Canadian programming, based on their specific abilities, rather than general guidelines.

For Canadian productions to thrive on television, the task force says the CRTC must encourage the transfer of greater resources to networks from individual stations.

It outlines how CTV affiliates deprive their network of the funds necessary to produce quality Canadian programs and recommends that the CRTC bundle the individual stations and network in a single package in its deliberations.

Call for More Canadian Content

Toronto THE TORONTO STAR in English 23 Sep 86 pp A1, A10

[Article by Martin Cohn]

[Text]

OTTAWA — The "Canadianizing" of television and radio is essential to preserving the country's national identity, say the authors of a mammoth review of the broadcasting industry.

In what is described as a "call to arms," they called on television viewers, government decision makers and broadcast executives to find the money for improved Canadian programming.

"We want there to be shows by Canadians, for Canadians and about Canadians," Gerald Caplan, co-chairman of the federal task force on broadcasting, said yesterday.

Large gaps have opened up in documentary production, independent filmmaking, the arts, childrens' shows, news and current affairs, Caplan told a news conference.

The task force calls for improved funding of the Canadian Broadcasting Corporation — and a stronger commitment from private networks — to give viewers a wider choice of Canadian television programs.

Caplan and co-chairman Florian Savageau called for a new TV Canada channel to consolidate programming by public broadcasters such as the CBC and provincial educational networks. They also recommended a CBC all-news channel.

Both new channels could be paid for through new cable TV fees of \$1 a month, a price which Caplan said was well worth paying. "In our view that's a pretty good bargain," he told the news conference.

"There are costs to borne for Canadianizing the broadcasting system, we make no bones about it."

Communications Minister Flora MacDonald said the report's recommendations would form the basis for a new Broadcasting Act within the next two years, to replace the existing 20-year-old laws.

"I would hope that we would be able to move quickly enough so that we would see legislation within a year," she said in an interview.

"This is taking us well into the 21st century." The issue is vital "because of the fundamental nature of broadcasting to the survival of this country."

While MacDonald declined to comment on specific recommendations, she said the report will force Canadians to "tackle the two questions of Canadian content and cost."

In its report, the task force recommended that the proposed new channels produce the Canadian programs that private networks have failed to deliver; the private networks, in turn, would absorb the American series cast off by the CBC, so that viewers would still have a choice of what to watch.

"We know that Canadians want to watch Canadian programs. They don't want to watch any fewer American programs. We're not naive about that," Caplan said.

"Canadians love those programs and nothing in our recommendations will limit their access to them. What they want, though, is more Canadian shows. The heart of our new strategy, without any question, is a properly funded CBC," Caplan said.

However, it is time for the CBC to concentrate on its mandate of giving viewers a better picture of the country and the world through Canadian eyes.

"It is ludicrous that the CBC continues to show American programs which are available in such abundance that tens of thousands of Canadians have access, each night, to more American programs than the people living in Manhattan," Caplan told reporters. "There's no case for the CBC to continue showing those programs . . . that's the key to our new system."

Private networks

The task force report also suggests re-allocating some of the \$3 billion in money that changes hands in the broadcast industry. It also calls on private networks to shoulder more responsibility in return for the protectionist measures — worth an estimated \$100 million in revenues — erected by the government to protect their advertising markets from American competition.

Private networks, which can trace at least \$100 million in guaranteed revenues to their sheltered markets, should increase their

share of high-quality domestic productions, Caplan said.

Caplan said these goals are within reach if the government — and television viewers — accept the challenge of re-orienting the broadcast system.

"The question is simply a matter of will," he told reporters. "We're saying there's lots of money in the system. The government is in a position to redistribute it . . . Whether they will bite the bullet, it's not up to us to decide."

However, Caplan predicted the Progressive Conservative government, which commissioned the task force report nine months ago, would act on the recommendations.

Liberal communications critic Sheila Finestone also praised the report for taking a reasonable approach to the problem. But she openly wondered whether Canadians, who are "being nicked and dined to death," would be willing to pay an extra \$12 a year to support domestic programming. Noting that the government has commissioned a series of other task forces, she called on MacDonald to act quickly on this latest report.

New Democratic Party communications critic Lynn McDonald criticized the report for failing to recommend cuts in television advertising. "Canadians would like to see less advertising, and less intrusive advertising," she said.

McDonald also expressed pessimism about the chances of government action in the wake of the report, and pointed to previous budgetary cuts at the CBC as an indication of Ottawa's misguided policies.

Improvement of CBC

Toronto THE TORONTO STAR in English 23 Sep 86 p A10

[Article by David Crane]

[Text]

The Canadian Broadcasting Corp. needs more money, better management and improved labor relations to carry out its central role in "assuring that Canadians have a truly Canadian broadcasting system," the task force report on broadcasting says.

The CBC is operating in an atmosphere of crisis and antagonism, with an uncertain mandate and under sharp government funding cutbacks even though the CBC "has long been the most significant single source not merely of Canadian programming but of Canadian culture in this country," the report says.

Expressing its "high regard for the CBC," the task force contends the CBC "has built one of the finest radio services in the world and has mounted a television service that competes directly with the most prodigious, influential and heavily financed entertainment industry ever created."

Canadian content

The task force stresses the CBC should continue to play the central role in Canadian broadcasting. "For us the CBC is not a complementary broadcasting agency; it is the central one. It must be the main Canadian presence on television. The role of the private system is to complement the CBC in the area of quality Canadian programming and to supplement it by providing American programming."

The task force stresses that more money alone won't do. The CBC also needs a clearer mandate and a better process for matching its mandate with its resources.

This year the CBC has a \$1.1 billion budget, with \$848 million coming from Parliament and almost all the remainder from ads on English- and French-language television.

The task force recommends that the CBC's mandate continue to stress that its services be predominantly Canadian in content and character and that it should offer a balance from the whole range of Canadian programming. It should not be expected to provide foreign programming that is readily available from other Canadian broadcasters, but should offer "the best of foreign programming not otherwise accessible to Canadians."

The task force also urges that the CBC's radio and TV networks should be made available to as many Canadians as possible. Among other things this would mean extending CBC radio coverage in stereo to all Canadian communities of 5,000 or more at a cost of \$37 million and ensuring that privately-owned CBC-TV affiliates carry all CBC network programming.

But the task force's main concern is increased Canadian programming on CBC-TV, including peak viewing hours between 7 p.m. and 11 p.m.

The task force generally supports the CBC goal of removing the remaining 5½ hours of mainstream American shows from its prime-time weekly schedule by next September.

The task force estimates the net replacement cost of five full hours of American programs with Canadian ones would be at least \$20 million. As well, the CBC would lose \$30 million in prime time ads as it dropped American programs.

The task force wants the CBC to play a major additional role through the introduction of a Canada-wide all-news channel in English and a partial channel in French.

The news channel would have no commercials. Its \$20-\$35 million annual costs should be covered by

a monthly cable-TV subscriber charge of 25 cents, the task force says.

On financing, it says, there are no more savings to be had from the CBC, which has already cut \$32 million from regional broadcasting in the last two years.

Instead, a new system of financing is needed, the task force argues. At present Parliament provides the CBC with funding while the CRTC sets out the detailed conditions for the CBC's five-year licence. But the two activities are separate: when the CBC appears before the CRTC with its five-year plan, it has no idea what level of funding it will get from the government.

This must change, the task force says. "Prior to the filing of the

CBC's application for its licence renewal, the government should indicate what level of financing it intends to provide to the corporation for its next five-year period.

To financially assist the CBC, the House of Commons should pay the CBC the costs of producing and distributing the Parliamentary Television Network — just over \$4 million a year. And the Department of External Affairs should fund the \$16 million annual cost of Radio Canada International, the task force says.

The task force is also dismayed by "the contentious atmosphere" surrounding labor relations at the CBC. The CBC has about 11,000 staff employees and draws on a pool of about 30,000 contract employees and freelancers.

TORONTO STAR Editorial

Toronto THE TORONTO STAR in English 23 Sep 86 p A20

[Editorial]

[Text]

The report of the Caplan-Sauvageau task force on broadcasting — all 700 pages of it — provides a welcome counterweight to the growing trend toward the Americanization of our television. Its description of the crisis situation in which Canadian TV finds itself should prompt the federal government to action. Not to act would be an abdication of duty.

The task force, co-chaired by former New Democratic party official Gerald Caplan and Laval University communications professor Florian Sauvageau, blames a succession of penny-pinching governments — not just the current one, which appointed the task force — as well as broadcast regulators and private broadcasters for the lamentable state of affairs. One example from the task force report tells it all: An astounding 98 per cent of our television drama comes from foreign (mostly American) sources.

Caplan-Sauvageau prescribes large cash injections — about \$270 million a year — to boost Canadian fare both on the CBC and on privately owned networks. The money would be raised mostly through new or higher taxes on video-cassettes, VCRs, and cable TV fees. While we wonder about the wisdom of earmarking taxes for specific purposes, we agree that more money is needed.

The task force also recommends significantly tougher Canadian content rules for the networks — 95 per cent for the

CBC in prime time (7 p.m. to 11 p.m.) and 45 per cent for the others. (The current levels are 80 per cent and 37.5 per cent, respectively.) These new targets seem reasonable. But, if applied, they must be accompanied by more money. It costs more to produce Canadian programs than it does to buy American products off the shelf. Ottawa ought to recognize this fact of television life.

In recent years, the government has relentlessly squeezed the CBC budget. The Canadian Radio-television and Telecommunications Commission (CRTC), taking its deregulatory cue from the government, has, in turn, loosened its reins. (In its proposed new rules for television, the CRTC is trying to apply the dubious "less-is-more" proposition that, if private TV stations are allowed to produce fewer Canadian shows, quality will somehow improve.) It is this vicious circle Caplan-Sauvageau seeks to reverse.

We don't endorse all the task force's recommendations. We are skeptical, for example, about its proposal for a new channel — "TV Canada" — to be operated by a hybrid corporation made up of the CBC, provincial broadcasters like TVOntario, and the National Film Board. We already have one public broadcaster with a proven track record — the CBC. If there is more to be done, let's use it as the vehicle rather than create some new body.

But on the whole the task force report is welcome reading. Unfortunately, it has been delivered seven months behind schedule and is now in danger of being overtaken by events in Ottawa. Four TV networks (the CBC, CTV, TVOntario and Global) are about to seek licence renewals from the CRTC. With broadcast issues in a flux, it probably would be best for all concerned if the CRTC were to grant the networks interim renewals until the government, and Parliament, decide on a new broadcast policy.

Canadian television does not have to be bad. As just one case in point, the CBC production of *Anne of Green Gables* won an Emmy award Sunday night for the best children's program. (It was shown on PBS in the United States). But, bombarded as we are by American airwaves, we are in a unique situation. Special funding and rules are required to nurture Canadian television. The alternative — to abandon the field entirely to the U.S. networks — is unthinkable for a sovereign country.

GLOBE AND MAIL Editorial

Toronto THE GLOBE AND MAIL in English 24 Sep 86 p A6

[Editorial]

[Text]

It is a pleasure to read a discussion about Canadian culture that avoids melodrama and exhibits a strong sense of context. Such is the report of the Caplan-Sauvageau Task Force on Broadcasting Policy, released this week in Ottawa.

"How Canadian do we wish our broadcasting system to be? As Canadian as possible — under the circumstances." Circumstances include the status quo, and this task force does not straggle off into airy proposals to revolutionize the CBC (though that exercise has had its uses). Circumstances include the yawning disparity between Canadian and foreign content on television, handled here with a sensitive hand. And circumstances include money, for which this task force shows refreshing respect.

Canada's broadcast system is not in "crisis." Cutbacks to the CBC have been balanced by the new federal Broadcast Fund, which provides \$70-million annually as seed money for Canadian television programming. Ottawa is creating additional routes for public support of broadcasting, joined by some provinces. The task force encourages this trend to diversification — along with a recommitment to the Canadian Broadcasting Corporation.

It is time to bring the CBC in from the cold. Canadians have

indulged their suspicions of separatism, socialism, centralism and waste in the CBC to the point of damaging the national interest. The task force does the great service of concentrating on the practical need to complete the Canadianization of the CBC's television schedule (which is already 75-per-cent Canadian between 7 p.m. and 11 p.m.). This is a logical consequence of Canada's existence as a nation — a broadcast system that includes a strong Canadian presence, including drama and comedy. The task force does not see the CBC as sole carrier of this mission — a blessed escape from one-track thinking about public broadcasting — but it firmly supports the CBC's role at the heart.

This means more money — about \$100-million a year in addition to the CBC's present \$848-million grant. It must come from Ottawa's general revenue, which adds to the urgency of sensible reform in other programs to allow for emerging priorities such as this.

Equally important is the task force's proposal for two new public television networks to complement the CBC. One would be news and public affairs. The other — operating under a different authority — would feature children's programming, re-

peats of the best Canadian TV productions, regional material, documentaries, films and performing arts. Neither new channel would engage in major production itself, each serving primarily as impresario and distributor on basic cable. The task force suggests they be financed by taxes of about \$2 a month on cable subscribers — \$1 for each new channel. (The task force opts for new cable taxes instead of special fees on private broadcasters, so the latter can increase their own Canadian programming — to which we turn tomorrow.)

There is a life to every issue, and public broadcasting in Canada has come to its maturity. It is

time to cut through our aging debate about structures, wishes and intent and make some commitments to action. By shifting a few priorities within the federal budget, we can bring the CBC to its historic potential. By adding a modest tax on cable, we can greatly expand the access of Canadians to each other through this age's primary medium of communication — television.

We know that, as a small nation beside an enormous one, Canadians must act collectively to ensure that we hear our own voices in the crowd. This task force provides some good advice on how to turn up the volume.

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CSO: 5520/103

CANADA

CRTC CHIEF COMMENTS ON BROADCASTING TASK FORCE REPORT

Toronto THE TORONTO STAR in English 30 Sep 86 p F1

[Article by Sid Adilman]

[Text]

The head of the federal broadcast regulating body yesterday took the high ground in his first public reaction to the broadcasting task force that sharply criticized regulators for being too soft on private TV operators.

Andre Bureau, chairman of the Canadian Radio-television and Telecommunications Commission (CRTC), noted that TV broadcasters, such as CTV and Global, had been served notice in the CRTC's annual report released in June that more and better Canadian-content programs would be expected of them.

He spoke at a one-day Financial Post broadcasting conference in the Westin Hotel that was packed with broadcasters, advertising agency personnel and others connected with the industry.

The annual report, he said, stated that Canada's current TV season "will be landmark years in the development of Canadian programs" because of government incentives like Telefilm Canada's Broadcast Fund and regulatory guidelines.

He generally "commended" the seven-member task force for avoiding "pie-in-the sky proposals" and for showing "that they were occupied by fairness, not eye-catching headlines."

But Bureau's muted anger flashed briefly when he joked that Gerald Caplan, the task force's co-chairman, "has refused to succeed me and test if the report's 180 recommendations could be successfully implemented in the real world." The remark brought a loud gasp from the audience.

Caplan, who was present, later privately (and jokingly) responded that he hadn't been asked to succeed Bureau. Caplan now works for a private Ottawa consulting company.

The task force report recommended that private TV broadcasters air 45 per cent Canadian content in extended prime-time hours from 6 p.m. to 11 p.m.

Bureau sided with those who have argued for years that more money be spent on Canadian programs, not more prime-time hours devoted to them. "Fundamentally, the problem is that we have to put more money in Canadian programs to make them more attractive."

But he agreed with the report that the CRTC does not enforce its guidelines stiffly enough. "We have no money. Our budget is \$25 million (raised chiefly from licence fees charged broadcasters) and we have reduced staff the last few years."

He also called "extremely dangerous" a recommendation in the report that the federal cabinet should have the right, as is planned, to issue specific policy directives to the CRTC.

"If the CRTC were subject to government directives you wouldn't have the arm's-length relationship that now exists. They just should abolish the CRTC."

But if the government sets up "broad policy guidelines, that would be okay with me. Where do you draw the line?" Specific directives, he argued, would "probably be a political nightmare for the communications minister."

Bureau said the CRTC has begun a study of the task force report and hoped that the 57 research studies it commissioned would be available to CRTC staff and said the CRTC would have a more detailed public response after the analysis is completed.

CHUM Ltd. vice-president **Fred Sherratt**, who appeared on the same panel, also generally praised the report. But Sherratt said none

of the task force's 57 research studies asked Canadians if they were satisfied with existing TV services and programming, or if they agree that government should intervene more. And he said federal politicians are responsible for insisting that viewers across Canada get almost the full range of American programming.

"We are told the system is too Canadian. Why does it appear American? Because those elected to represent Canadians in Ottawa have, for the past decade and a half, taken the attitude that all Canadians should have the right to see, not only all Canadian television, but all American television as well."

Despite that, he noted, "Canadian stations have continued to attract a lion's share of audience" because the stations also include Canadian productions.

Bill Armstrong, CBC's executive vice-president, spoke on the same panel and backed the report, as did his boss, **Pierre Juneau**, last week.

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CSO: 5520/105

CANADA

'FIBRESAT 86' INTERNATIONAL CONFERENCE HELD IN VANCOUVER

Toronto THE GLOBE AND MAIL in English 20 Sep 86 p B5

[Article by Sunny Lewis]

[Text]

Long-distance telephone calls for 10 cents a minute may arrive in the 1990s, telecommunications experts say.

They were speaking at Fibresat 86, an international conference held as part of the recent communications week at Expo 86. It drew 300 satellite and fibre-optic engineers and executives from six continents to Vancouver.

They predicted that, in the next decade, satellite and optical-fibre technologies will compete with — and complement — each other.

In the United States, 700,000 miles of conventional telephone cable has been replaced with fibre. Satellites will lose business as existing transoceanic submarine cables are updated with fibre optics. But, as Chris Simpson of American Satellite Corp. put it: "If you can fill the cable up, great. If not, why bother?" Laying the cables is a costly and time-consuming operation, he said.

Satellites, while expensive to launch, permit flexibility, allowing almost instant networks that can be reconfigured to meet changing customer requirements. Fibre optics cannot compete for voice and data services over lightly used routes, or private networks. The technology is also uncompetitive for "point-to-multipoint" services that distribute radio, television or cable TV.

Satellites are ideal for on-the-spot news gathering. They also shine in providing links to remote locations with low volumes of traffic, such as the Far North, small towns in Brazil and islands in the Pacific.

The number of corporate satellite networks has doubled between 1985 and the first half of 1986, said Fred Dassler, executive director of the International Association of Satellite Users and Suppliers. These networks have between 200 and 500 earth station sites.

Richard Jestin, director for Anik Systems for Telesat Canada predicts that, by 1993, the number of small earth stations in U.S. private networks will surpass 250,000.

This proliferation of private systems is prompted by the recent emergence of "very small-aperture terminal" technology.

VSAT uses a tiny portion of the spectrum of second-generation, K-band satellites, such as the Anik C series, to transmit data to small earth stations, the higher frequency permitting the use of smaller dishes, 1.2 to 1.8 metres in diameter. They can be installed on most rooftops without special reinforcement. (Telesat Canada plans VSAT service in four to six months.)

The intriguing prospect of a 10-cent-a-minute long distance call will be a reality when the technology is perfected to allow switching of cir-

cuits and single phone calls from one orbiting satellite to another.

The space switches must be accompanied by laser transceivers and spot beams that can hop or scan from point to point on earth as required. Robert Lovell, director of communications for the U.S. National Aeronautics and Space Administration, predicted the first flying switch will be in orbit in the early 1990s.

A race is on, which includes NASA, the European Space Agency and two Japanese satellite developers, to fly the first switch. Mr. Lovell said NASA has invested \$75-

million (U.S.) and is one year away from building the flight hardware. The agency plans to test-fly the technology on its Advanced Communications Technology Satellite.

Satellite service for mobile ground units such as trucks, trains, ships, even aircraft, is seen as an area of rapid expansion. This year, for example, live broadcast television and access to shoreside credit were introduced for cruise-ship passengers. Maritime and oil rig workers will soon enjoy the same amenities.

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CSO: 5520/104

CANADA

STUDY ANALYZES THREAT OF TELEPHONE NETWORK BYPASS

Toronto THE GLOBE AND MAIL in English 19 Sep 86 p B3

[Article by Lawrence Surtees]

[Text]

Bypass of telephone company networks is not the threat it has been held up to be by monopolists and politicians, says a consultant's study commissioned by the federal and provincial governments.

Canadian telephone subscribers do not have a significant propensity to bypass domestic telephone company networks by using cheaper U.S. services, concludes the report's authors at D. A. Ford and Associates Ltd. in Ottawa.

And, contrary to statements made by previous federal communications ministers, the study found that the economic cost of the bypass threat is negligible.

That key finding challenges the main argument used by telephone companies and politicians in denying competition to monopoly telephone company services. Although the report was released to the governments several months ago, it was not made public until earlier this month by the federal Department of Communications.

The report's main finding also challenges popular views and worries expressed by consumer groups, unions, the 10 largest telephone companies and the federal telecommunications regulatory agency.

By using non-conventional ways of routing long-distance telephone calls through carriers in the United States or private networks, customers can save money on their calls.

But the prospect of extensive bypass has been of increasing worry to the domestic telephone companies because of the growth of competition in the United States and a proliferation of alternative means of routing calls.

Based on research conducted between January and March, the study estimates that bypass cost the domestic telephone companies \$4.6-million in 1985, compared with total telephone company revenue of more than \$9-billion in the same period.

The study also found that only \$1.5-million of the revenue loss came from telephone use. The remaining \$3.1-million was the result of bypass by Telex subscribers using discount message services and carriers based in the United States.

Because of the many ways to bypass the telephone system, the authors of the report said they tried to give the term as wide a meaning as possible.

The finding contradicts the prevalent argument that bypass poses a significant threat to the monopoly telephone carriers.

The study also found that businesses and residential consumers are paying substantially higher telephone rates than their counterparts in the United States.

As recently as last February, then federal communications minister Marcel Masse said in Montreal that lower long-distance rates in the

United States are tempting many domestic companies to bypass the telephone companies. In June, 1985, he said the impact of increased bypass would "allow our system to gradually deteriorate" or force telephone rate increases.

Both the federal Government and the telephone companies have used these arguments to deny competition or to tread cautiously in making policy changes.

But the D. A. Ford study argues that "benefits would accrue to most sectors of the economy and all regions of the country" if telephone rates for Canadian businesses were reduced to comparable levels charged in the United States.

On average, telecommunication costs to business users are about 13 per cent lower in the United States. But the study found wide differentials in the rates for a number of services: long-distance rates are 17 per cent lower in the United States; private lines rented for voice service are 49 per cent lower; and dedicated computer data lines are 52 per cent less.

A company in British Columbia that attempted to make a business out of routing subscriber calls through the United States recently closed its doors as a result of action by the Canadian Radio-Television and Telecommunications Commission. The study argues against the

current high costs and prohibitions that keep Canadians away from alternative carriers and protect domestic carriers.

Economic modelling led the authors to conclude that reductions in telecommunication rates would have a more favorable impact on the economy than comparable reductions in personal income taxes.

The investigation was one of several studies commissioned by the federal and provincial communications ministers last year that will be used to shape a national telecommunications policy.

Ottawa began a telecommunications policy review more than five years ago under prime minister Pierre Trudeau. The current Government led by Prime Minister Brian Mulroney ordered the review to be conducted in co-operation with the provinces.

The long-awaited review is expected to give much needed policy direction to regulatory bodies on competition and on telecommunication rates. In August, 1985, the CRTC rejected an application from CNCP Telecommunications of Toronto asking for long-distance competition. And the two largest telephone companies are putting pressure on Ottawa to allow "rate rebalancing" that would lower long-distance rates but increase local rates.

CANADA

TELECOMMUNICATIONS FIRMS COOL TO FREE TRADE

Toronto THE GLOBE AND MAIL in English 10 Sep 86 p B2

[Article by Lawrence Surtees]

[Text]

Suppliers of telecommunications services on both sides of the Canada-U.S. border may benefit from lower equipment prices if negotiators at the free-trade talks agree to eliminate tariffs on those goods.

But domestic telephone users will not get reductions in their bills because regulatory differences in both countries preclude free trade in telecommunications services.

That is the consensus of a panel of two industry representatives and a telecommunications lawyer who will be discussing free trade tomorrow at the annual convention of the Canadian Business Telecommunications Alliance. Their views help to explain the lack of support for sectoral free-trade initiatives among some key domestic industry players.

The North American telecommunications equipment industry had total revenue of more than \$22-billion in 1984. Partly because of higher tariffs and a well-established industry, Canada enjoyed a trade surplus of \$185-million that year. The average Canadian tariff rate on telecommunications equipment made in the United States is 17.8 per cent, while the average U.S. rate is 7 per cent.

Although the Canadian surplus is a small proportion of total bilateral trade in the sector, both it and Canada's higher tariffs "have served to promote heightened protectionist sentiment in the United

States," said Donald Morrison, vice-president of marketing and planning at AT&T Canada Inc. of Toronto.

The position of American Telephone & Telegraph Co. of New York is shaped in part by a desire to remove obstacles to greater market penetration. AT&T would prefer a comprehensive agreement on liberalizing all bilateral trade because sectoral free-trade talks suffer from a "lack of scope."

Laurence Dunbar, a lawyer with the Ottawa legal firm Johnston & Buchan, concludes that a reduction or removal of tariffs would benefit equipment buyers and result in increased competition. But he cites a study done by a group of business students at Hamilton's McMaster University in April that says the effects on the industry would be minimal.

Two of Canada's largest telecommunications equipment makers have already penetrated the U.S. market to a high degree and manufacture their products there. A third is precluded from selling its goods in the United States by its U.S. parent.

Northern Telecom Ltd. of Mississauga, Ont., has circumvented existing barriers by locating many of its factories in the United States, a market that accounted for more than 60 per cent of its total revenue in 1985.

A vocal opponent of protectionist measures, Northern Telecom chairman Edmund Fitzgerald is also opposed to sectoral free trade.

"We do not support reciprocity on a sectoral product-by-product or country-by-country basis," Mr. Fitzgerald said last year. "Sectoral trade agreements . . . simply contribute yet another form of trade barrier to the international environment."

Mitel Corp. of Kanata, Ont., is also significantly insulated because of its manufacturing plants located in the United States. The U.S. market accounted for 42 per cent of its sales in fiscal 1985. Microtel Ltd., a subsidiary of British Columbia Telephone Co. Ltd. of Burnaby, B.C., is precluded from selling its wares in the United States because of an agreement between B.C. Tel and its U.S. parent, General Telephone and Electric Corp.

But the high degree of integration between North American telephone companies and related manufacturing arms constitutes a significant non-tariff barrier to free trade, Mr. Dunbar wrote in a paper written for the CBTA convention.

"A Canada-U.S. trade agreement would have to alter the purchasing and procurement policies of the major telephone companies in both countries before it could result in anything approaching free trade in the North American telecommunications equipment industry."

The third panel member, Gordon Lucas, vice-president of National Advanced Systems, forecasts the tariff reduction could lower domestic equipment costs by 10 to 15 per cent.

But the impact on telecommunication services provided by telephone companies is expected to be negligible because it will "depend on the degree of liberalization of the regulations governing communications services," Mr. Lucas writes in his prepared text.

The numerous regulatory differences between Canada and the United States constitute major non-tariff barriers to free trade in telecommunications services. For example, long-distance competition is illegal in Canada, precluding users from choosing other carriers.

However, the United States is anxious to include these and other services in any free-trade agreement with Canada because it would provide a precedent for a future multilateral agreement, Mr. Dunbar said.

Such an agreement would break new ground because there are currently no provisions in the international General Agreement on Tariffs and Trade dealing with traded services. The issue will be discussed by GATT ministers at a meeting beginning Monday, but it is still unclear whether services will be included in the next trade round.

Several giant business interests in the United States, particularly in the computer and financial industries, are pressing U.S. negotiators to demand regulatory changes from Ottawa. And, Mr. Lucas writes, the United States can be expected to use its negotiating leverage to make demands of our regulatory system.

Just as domestic regulations prevent International Business Machines Corp. or Citibank from setting up substantial networks in Canada in competition with the telephone companies, U.S. law acts as a barrier to Canadian companies from grabbing a piece of the much larger long-distance market in the United States. That market was worth more than \$40-billion last year, compared to about \$5-billion in Canada.

Bell Canada, the largest domestic telephone company and utility arm of Montreal-based Bell Canada Enterprises Inc., favors sectoral free trade.

But its support is conditional on Washington removing the foreign

ownership restriction and Ottawa allowing Bell to rebalance its rates. Free trade in telecommunications services would result in competition and Bell's long-standing policy response is to be able to reduce long-distance rates and raise local rates.

Before Canada's negotiators, led by Simon Reisman, can even consent to discussing free trade in telecommunications services, the federal Government will have to determine its new telecommunications policy, an exercise that has been delayed for more than five years.

As far as trade in goods, sources in Ottawa indicate that Mr. Reisman's team is circumventing the policy vacuum at the federal Department of Communications by getting advice and briefings from the Department of Regional Industrial Expansion. Officials at DRIE tend to be more favorable to competition, which may bode well for equipment buyers.

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CANADA

VANCOUVER UHF EMERGENCY RADIO SYSTEM IN OPERATION

Vancouver THE SUN in English 23 Sep 86 p D4

[Article by Peter Trask]

[Text]

No news is good news to Vancouver emergency planner Mel Blaney and his counterparts in the 13 municipalities of the Greater Vancouver regional district.

But if some disaster — such as an earthquake or a massive flood — does occur, they can now find out fast even if all telephone and electrical services are knocked out of action.

A new \$150,000 emergency radio communications system designed to assist fire, police, health and welfare agencies in the event of a major emergency went into operation today Tuesday.

Mayors of the 13 municipalities gathered at the GVRD offices on Kingsway to broadcast a test message to the emergency operations centre in each of the cities and districts involved in the program.

"It means that from now on the people in charge of coping with an emergency can easily communicate with other, even if some or all telephone services are no longer operating," said Blaney.

Up to now, he said, a Vancouver fire chief attending a major blaze near the Burnaby boundary was unable to communicate directly by radio with his Burnaby counterpart.

"They had to rely on telephones to communicate because their radios operated on different frequencies," said Blaney.

The UHF system consists of 16 base stations and 24 portables distributed throughout the Lower Mainland and linked by radio to a central transmitter.

The cost of the program was shared by Ottawa and the member municipalities of the GVRD.

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CSO: 5520/1

CANADA

NEW TELECOMMUNICATIONS TRAINING INSTITUTE PLANNED

Ottawa THE CITIZEN in English 9 Sep 86 p B3

[Text]

MONTREAL (CP) — The federal government and six telecommunications companies, cocking an eye towards Third World sales, announced Monday they will jointly fund a training institute for senior telecommunications managers from developing countries.

The Telecommunications Executive Management Institute of Canada will receive half of its \$4 million funding over the next five years from the departments of Communications and External Affairs and half from the private sector, said Communications Minister Flora MacDonald.

The six companies involved in funding the institute are Teleglobe Canada, Bell Canada International, Northern Telecom Canada, Ltd., Telecom Canada, Telesat Canada and Microtel Learning Systems.

The institute will also give the government and industry an opportunity to showcase its high-tech hardware to officials from countries who will soon be

shopping for equipment.

Jean-Claude Delorme, president of crown-owned Teleglobe Canada and spokesman for the half-dozen telecommunications companies involved, said "The institute will help promote the Canadian telecommunications industry around the world."

Sir Donald Maitland, head of the Independent Commission for the Development of World-Wide Telecommunications, joined the news conference live via satellite from London.

Maitland said the technological imbalance between the west and developing countries was "unacceptable," and "the centre will meet the problem of lack of trained personnel."

Delorme said the first six-week training session for 20 managers will be held next year at various business, research and academic institutions in the Montreal area. Graduates will receive a degree from a Canadian university.

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CSO: 5520/104

CANADA

BRIEFS

MICROTEL SATELLITE LINK DEVICE--Microtel Ltd says it has generated a new product from some existing technology that it hopes will help it to meet the satellite-communications needs of cross-country organizations. "Major corporations, government agencies and communications carriers will be able to use the new product to connect data terminals such as personal computers, automated teller machines and point-of-sale terminals with host computers via satellite," said Microtel, a B.C. Tel subsidiary. The new product, known as a VSAT (very small aperture terminal), is a new version of Microtel's Spacotel satellite communications system. Microtel introduced its first communications satellite in 1983. [Text] [Vancouver THE SUN in English 11 Sep 86 p C10] /9317

CSO: 5520/105

ROMANIA

INTERNATIONAL TELECOMMUNICATIONS SEMINAR HELD

Bucharest REVISTA TRANSPORTURILOR SI TELECOMUNICATIILOR in Romanian Vol 13 No 3 86 pp 41-44

[Report by Valeria Bara of the Research and Design Institute for Telecommunications on the international seminar on "The Technical and Operational Aspects of Centralized Maintenance" held in Bucharest in April 1985 under the aegis of the International Telecommunications Union]

[Text] An international workshop-type seminar on "The Technical and Operational Aspects of Centralized Maintenance" was held in Bucharest between 18 and 26 April 1985.

The seminar was one of the events held by the International Telecommunications Union [ITU] within the framework of the European regional program for developing international telecommunications, and was organized by the Bucharest Research and Design Institute for Telecommunications (ICPTTc) in cooperation with ITU.

The telecommunications administrations of the People's Republic of Bulgaria, CSSR, Greece, SFRY, Malta, the Socialist Republic of Romania, Portugal, Turkey, and the People's Republic of Hungary, which belong to the above regional program, were represented by delegates who attended the workshop classes.

The seminar was also attended by prestigious lecturers sent by the telecommunications administrations of France, the FRG, Greece, Great Britain, the Netherlands, Portugal, Sweden, and the Socialist Republic of Romania.

The proceedings were chaired by Dr Eng Sofronie Stefanescu, deputy scientific director of the ICPTTc and national coordinator of the European regional program. As chairman of the seminar he was assisted by ITU expert Mr Hogendijk.

Note that the Bucharest seminar was preceded by two other similar seminars held in Athens and Sofia, which dealt with traffic engineering and telecommunications network planning.

The lecturers presented 26 reports grouped in five working sessions entitled:

1. Maintenance Supervision and Monitoring Possibilities;
2. Maintenance Coordination Centers;
3. Operational and Maintenance Management Organization;
4. Types of Services and Operation Quality;
5. Computer Utilization.

Aside from the reports presented at the working sessions the lecturers representing the telecommunications administrations of Sweden, the Netherlands, and Malta assigned the workshop attendants the following case study to solve: The Telecommunications Administration of the Country TELELAND. For this study the workshop attendants had to provide technical, economic, geographical, and personnel solutions for organizing the maintenance of the telecommunications network on an imaginary territory with varied geographical, material, and technical conditions.

The solutions devised by the workshop participants, grouped in three working groups for the purpose of the case study, and the solution proposed by the authors were presented at the final proceedings of the seminar.

The main aspects analyzed by each lecturer in his paper (document) were then reviewed.

Document No 1: "Monitoring and Gauging Subscriber Lines," by T.G. Avgeris, Greece.

The author presented the achievements of the Greek Administration in the area of monitoring and automatically gauging subscriber lines. He described the operation of a hierarchical monitoring network made up of: remote units containing the interface with the subscriber line; monitoring control centers to which the remote units and the departmental center are connected and which monitor the operation of all the control centers belonging to it. One departmental center serves one of the areas into which the national network of subscribers is divided.

This system permits to automatically gauge the following functions of the subscriber line: direct current, alternate current, capacity, and insulation resistance. It can also determine the loop resistance of the line, the speed of the telephone dial, the frequency of the dial tone and of other tones, and so forth.

Document No 2: "The System Utilized to Gauge Subscriber Lines (MESCIA)," by B. Prince, France. The document presented an electronic variant of the testing bench used by electromechanical telephone exchanges and a device for gauging subscriber lines connected to electronic telephone exchanges. These devices are connected to a main operation center which can issue orders on telegauging

subscriber lines for: determining the value of the direct and/or alternate tension existing between one of the line wires and the soil; evaluating the loop and insulation resistance; determining line integrity; measuring the electrical parameters of the telephone dial, and so forth.

Document No 3: "Utilizing the Monitoring Systems of Telephone Exchanges to Test Their Operational Quality," by B.W. Bos, Netherlands.

The author reviewed the methods used for testing the operational quality of the three types of telephone exchanges existing in the Dutch telecommunications network: electromechanical exchanges, analogue exchanges controlled by taped programs (SPC), and digital exchanges. He also presented various algorithms for improving the preventive and corrective measures taken in the maintenance of automatic telephone exchanges.

Document No 4: "Monitoring Urban and Trunk Line Junctions; Traffic Gauging," by T.G. Avgeris, Greece. The author presented a centralized system for monitoring urban and trunk line junctions and for gauging traffic according to directions at electromechanical telephone exchanges. The system is made up of microprocessor terminals connected at telephone exchanges, and a central microcomputer to which the terminals are connected. The following functions are recorded for each circuit (junction) monitored: number of calls and total busy time. The average busy time is calculated with the aid of these data, and the value obtained is compared with certain preestablished thresholds, thus obtaining a clear prognosis for the operation of each circuit monitored. The same data is also utilized for traffic processing.

Documents No 5 and 6: "Equipment for Testing the Transmission Characteristics of the Telephone Exchange," by F. Lagarto, Portugal, and "Monitoring Transmission Circuits," by B. Vaslin, France.

The first document dealt with a system designed for the automatic and centralized gauging of the transmission characteristics of the trunk network, in accordance with recommendations M.610 and M.620 of the CCITT. The system furnishes information on: attenuation, distortion, linearity, behavior of the transmission channel at various signal frequencies and entrance levels, and so forth.

The second document presented two types of equipment used for: gauging the transmission quality at various levels of selection of the electromechanical exchanges, and respectively determining the qualitative and quantitative indicators of telephone calls (the time required to establish a telephone connection, the direct and alternate current signaling accompanying the establishment of a telephone connection, the quality of the connection, etc.).

Document No 7: "Statistical Control and Monitoring of Maintenance Activities," by T.C. Avgeris, Greece. The author examined the statistical behavior of the functional parameters of the telephone communication equipment with a view to providing the telecommunications administrations with a practical tool for planning the budget and personnel involved in maintenance activities.

Document No 8: "The Alarm Retransmission System and the Monitoring of an Automatic Telephone Exchange," by B. Vaslin, France. The author presented the organization of maintenance activities at French telephone exchanges, where the hierarchical structure established is based on local, regional, and departmental coordination centers. The various types of alarms specific of telephone exchanges are also monitored on the basis of the same structure.

Documents No 9 and 10: "Monitoring the International Network," by E. Ericson, Sweden, and "Monitoring the Trunk Network," by B. Prince, France.

The first document reviewed the CCITT recommendations concerning the maintenance of the international network and referred to the manner in which this activity is organized in Sweden.

The second document presented the organization of the French trunk exchange and the methods used to monitor its operation. It also described the equipment used to centrally monitor the French trunk network. Information concerning the following points is collected from the trunk exchanges with the aid of terminal equipment: the operation of the junction control unit, direction traffic, etc.

The information gathered is dispatched to a monitoring center for processing, and the results are then communicated.

Documents No 11, 12, 13, 14, presented by N. Stavroulakis (Greece), N. Anderson (Sweden), R. Maltha (Netherlands), and W. Maurer (FRG) dealt with aspects of the optimal organization of a center to monitor the commutation systems of the telephone network. These documents featured the basic theoretical information required to solve the case study resolved at the seminar. The authors presented the concept and achievements of the telecommunication administrations of their respective countries in the area of organizing and furnishing equipment and personnel for monitoring centers.

Document No 15: "The Optimal Structure of Centralized Maintenance," by S. Stefanescu, deputy scientific director of ICPTC.

The author presented the conditions required to ensure centralized maintenance of the telephone systems and network, and the ways to achieve it. He also suggested a model for the organization of activities related to a maintenance center.

He then examined the technical and organizational methods that are to be employed to minimize the time required to repair a breakdown, since this parameter is decisive for the continuous operation of telecommunication networks and equipment.

In order to establish the correlation between the duration of a breakdown and the number of maintenance personnel, the author presented an analogy between the centralized maintenance systems and the waiting systems for servicing the telephone traffic.

Document No 16: "Organizing the Operation and Maintenance of Telephone Exchanges," by W. Maurer, FRG.

The author described the maintenance of electromechanical and SPC exchanges in the FRG. He presented the preventive and corrective actions that serve as the basis of maintenance activities, and examined the basic principles of organization of a centralized maintenance and monitoring of the systems of telephone commutation.

Document No 17: "The Organization and Maintenance of Local Networks; the ALPHA System," by B. Vaslin, France.

The author presented the organization, equipment, and working program of the department in charge of the exploitation and maintenance of the subscriber network within the French Telecommunications Administration. He also presented some of the maintenance devices and systems such as the system for the centralized gauging and monitoring of subscriber lines, the device for local gauging (at telephone exchange level) of subscriber lines, the system for the centralized monitoring of public telephones, the system for the rapid testing of subscriber lines, and the systems used for administrative activities and relations with the public.

The document also presented the ALPHA system of centralized monitoring of public telephones proceeding from the number of taxing pulses [impulsuri de taxare] recorded by them. This number is compared with various thresholds established so as to make it possible to diagnose breakdowns on the monitored public telephones.

Documents No 18-22: presented by T. Urban (Great Britain), B. Prince (France), and B. Bos (Netherlands) dealt with the quality of the services offered by the telecommunications systems. This topic is the subject of a new manual issued by the CCITT entitled Manual on the Quality of Services, Operational Management, and Maintenance of the Telecommunications Network.

Document No 23: "The Transfer of Information Between Remote Data Gathering Units and a Central Control Processor," by E. Psarras, Greece.

The author described the specific technical issues of a system of data collection with the aid of remote equipment provided with microprocessors and connected to a central multimicroprocessor-type processor.

Document No 24: General Considerations on Computer Utilization," by E. Ericsson, Sweden.

The author described the main technical aspects and the important advantages presented by the utilization of personal computers as compared to the old, expensive general central units.

Document No 25: "Computerized Equipment for the Centralized Maintenance of PCM Digital Transmission Systems," by I. Dobre, ICPTIC Bucharest.

The author described the centralized system of monitoring first order PCM systems, utilized for interconnecting electromechanical telephone exchanges. This system makes it possible to monitor the terminal equipment, line segments, and the operational quality of the terminal equipment through traffic measurements performed at no 16 time intervals. He also described the manner in which the system records and pinpoints breakdowns, while performing a chronological analysis of the events monitored.

Document No 16: "X8--A Computerized Maintenance System for Electromechanical Exchanges," by A. Vasilescu, ICPTTC Bucharest.

The author presented the configuration and operation of a system designed to automatically collect binary information from electromechanical telephone exchanges and to record and process them. This system is made up of terminal equipment provided with microprocessors and central equipment provided with a data bank minicomputer, to which the terminal equipments are connected.

The author also presented some of the most important applications of the X8 system: collecting and processing information on breakdowns in the equipment of telephone exchanges, and information furnished by the alarm oversight and monitoring panel.

After the presentation of the lecturers' documents the representatives of the telecommunications administrations of the People's Republic of Bulgaria, Turkey, and SFRY reviewed the results achieved in their countries in the area of centralized monitoring and maintenance of the telecommunications network.

The seminar formulated and adopted eight recommendations for the telecommunications administrations of the countries participating in the European regional program for developing international telecommunications. These recommendations highlight the importance of centralized monitoring and maintenance of the telecommunications network and equipment for improving their efficiency and operational quality.

All the participants agreed that the seminar contributed to better understanding the achievements attained in the area of maintenance of telecommunications systems and networks, to the adoption of better directions for the relevant activities, and to promoting ideas of progress and cooperation.

12782
CSO:5500/3002

BERMUDA

COMPUTER INDUSTRY, APPLICATIONS SET FOR EXPANSION

Promotional Contacts

Hamilton THE ROYAL GAZETTE in English 29 Aug 86 p 5

[Text]

Lawyer Mrs. Linda Milligan-Whyte will be travelling to Ireland next week, as Bermuda's representative at an international computer conference.

Government is helping pay for the trip with a \$2,000 donation to the Computer Society of Bermuda, Minister of Inter-governmental Affairs Sen. Charles Collis said.

Sen. Collis said Government was hoping to attract international computer business to the island, and that attending functions like next week's conference was the first step.

BCS President Mr. Peter Hollings said Mrs. Milligan-Whyte will promote Bermuda as a location for major information processing companies to base subsidiaries.

And she will also be trying to convince the International Federation of Information Processors (IFIP) to hold one of its upcoming conferences here.

Mrs. Milligan-Whyte is on the BSC board and is a contributing editor to an international magazine about laws governing data processing.

Mr. Hollings said Bermuda should be more active in trying to attract computer business. Ireland has, he said, and the industry is now a major component of that country's economy.

"And what has Ireland got that Bermuda doesn't?" Mr. Hollings asked.

Very little infrastructure is needed, said Mr. Hollings. "A handful of people can do great things in developing and marketing software worldwide.

"Not only would it be nice for the usual direct and spin-off benefits, but it would be good to have that capability on the island. Just to have the leaders here would put Bermuda in the forefront of the computer industry."

Mr. Hollings said that would start a cycle which would eventually "create a human capability" in Bermuda. Now, he said, a large number of senior data processors have to be imported.

Next week's world conference will be IFIP's 10th. Mr. Hollings said 49 countries are listed under the organisation's banner, and that it represents the "highest level of information processing".

New Commercial Grouping

Hamilton THE ROYAL GAZETTE in English 4 Sep 86 p 22

[Text]

Computer sellers held their first meeting yesterday as a newly-recognised group in the Bermuda Chamber of Commerce.

Said chairman Mr. Nicholas Weare: "We were encouraged to meet because of the growth and increased importance of computers in the local community."

Although there are no figures to show the industry's growth, Mr. Weare estimates there are more than \$50 million in computer systems on the island.

There are more than a dozen firms selling computers. Present at yesterday's meeting were the representatives of nine.

Mr. Weare, general manager Business Systems Limited, said the formation of the group was important to enhance communication among businesses with a common interest.

"Now if someone wants to talk about computers they can come to one group instead of having to meet with several individual concerns."

Formed under the Chamber's professional services division, the new section — Computer Systems Vendors — is opened to any business which complies with Chamber guidelines.

Its next meeting is scheduled for the first Wednesday of next month.

Bid for International Conference

Hamilton THE ROYAL GAZETTE in English 11 Sep 86 p 18

[Text]

Bermuda may host an international computer conference within the next six months.

And if the conference goes ahead, Bermuda may end up getting an onslaught of computer businesses.

Lawyer Mrs. Lynda Milligan-Whyte yesterday said Mr. James Finch, chairman of the International Federation for Information Processing's sub-committee on computer security, would be visiting Bermuda in October to look at services the island has to offer.

If Mr. Finch decides in favour of Bermuda, a conference would be held within the next six months. The

conference, which would be put on by IFIP's sub-committee on computer security, would attract 1000 people including computer law specialists, high-tech businessmen and bankers.

"These are the people who are most concerned with computer security," said Mrs. Milligan-Whyte, lawyer for the Bermuda Computer Society.

Mrs. Milligan-Whyte is just back from Dublin, where she attended IFIP's Tenth World Computer Congress. Her trip for the Congress, which is put on every three years, was sponsored by the Bermuda Computer Society and Government.

Mr. Finch's Bermuda visit arises out of the Dublin Congress, where Mrs. Milligan-Whyte suggested Bermuda as a conference site.

The offer, she said, had the backing of Government and the Bermuda Computer Society, with whom Mr. Finch would be meeting while here.

Mrs. Milligan-Whyte left the Congress with two main recommendations.

- Bermuda must become a full member of IFIP, and
- Government must have a national policy on the computer industry

"If Bermuda is serious about developing the computer industry, they would have to become a full member and would have to host conferences," she said.

She added: "The need for countries to have a national policy was stressed in most of the seminars. You can't just leave it to private enterprise."

Everyone — Government, businesses and the education system — must be involved in the development of a computer industry.

She pointed to the example of Singapore, which became committed to the development of the computer industry 10 years ago.

"They were computer-iliterate," she said. "Now most of the school children have a working knowledge of computers. Singapore now exports software."

Mrs. Milligan-Whyte, a corporate lawyer for Appleby, Spurling and Kempe, is very enthusiastic about the development of a computer industry here, saying it would be similar to the Island's role in insurance.

United States firms could set up exempt companies that could conduct trade in software to non-US jurisdictions.

Bermuda could also offer escrow arrangements for software agreements.

In an attempt to prepare the community for the onslaught of businesses that be attracted to Bermuda if the conference comes off, The Bermuda Computer Society planned to hold a series of seminars.

The first seminar would be conducted in October by Mr. Finch.

Information Network Plans

Hamilton THE ROYAL GAZETTE in English 18 Sep 86 p. 2

[Excerpts]

A communications giant is holding confidential talks with Government on plans to introduce a new service allowing a cut-price link-up between computers in different offices.

Major international insurance companies and local banks are keen to see a cheap new facility which would allow information to be sent to computers around the Island.

Cable and Wireless is now seeking permission from Government to introduce the new service.

But yesterday commercial manager Mr. Cornel Fox was reluctant to discuss the new project.

He said: "The situation is that we are in delicate negotiations with Government at this time and we feel it might be premature to say anything."

Existing link-ups between computers require individual telephone lines but the new service would make use of Cable and Wireless equipment already used to link computers internationally.

/9317

CS0: 5540/407

BERMUDA

BROADCASTING COMPANY EYES PROSPECTS FOR SECOND TV CHANNEL

Hamilton THE ROYAL GAZETTE in English 9 Sep 86 p 1

[Text]

Directors of the Bermuda Broadcasting Company are expected to make a decision within the next 12 months on whether the Island will get a second TV channel.

Sen. James Williams, chairman of the Board of BBC, said the company is investigating the prospects of installing the new equipment in an effort to improve the quality of service with a view to setting up a second channel.

"We are not at a point at which we can talk about costs," said Sen. Williams. "This is an important decision. We are looking at a six figure investment. We hope to know within the next six months exactly where we are headed."

He said it was too early to discuss any details about the second channel, and would not say if it was going to be a network station or a special interest channel.

The company has maintained the slot reserved for

Channel 8, despite the fact that a faulty transmitter has rendered it useless.

Senator Williams also accused the Government of interfering with the company's ability to generate revenue.

The company has fought its way back from the brink of financial disaster and has survived a storm of legal controversy over the past two years.

In the wake of the BBC's announcement of a \$561,000 profit, Minister of Community and Cultural Affairs the Hon. Robert Barritt said last week he would seek a better deal from the BBC for the broadcasting of children's programmes.

But Sen. Williams defended the \$200,000 broadcast fee charged the government, saying it was well below the normal rate.

"They are only paying half the normal cost for two

hours per day, five days a week," Sen. Williams said. "The fact that we made a profit last year is not a good reason for Government to try and make it more difficult for us to carry out our aims and objectives."

He accused Government of playing both ends against the middle, asking for better and more programming on the one hand, while cutting a main source of revenue on the other, specifically cigarette and tobacco ads.

"I have yet to see any irrefutable evidence that the elimination of cigarette advertising on television has reduced smoking," he said.

Sen. Williams said he met yesterday with the Minister of Community and Cultural Affairs and has informed him of the company's intentions.

"We are committed to the idea of a second channel," said Sen. Williams. "We would like to be able to offer a choice."

COLOMBIA

GOVERNMENT ADMITS INABILITY TO FINANCE SATELLITE

\$500 Million Cost Cited

PA112122 Bogota Emisoras Caracol Network in Spanish 1215 GMT 9 Oct 86

[Text] Bogota -- The Government of President Virgilio Barco has admitted that Colombia by itself cannot finance a satellite costing nearly \$500 million as would be necessary to enjoy the right to use a geostationary orbit. The country has already signed up for the use of the so-called Andean satellite at a lower cost. Minister of Communications Edmundo Lopez Gomez told the congress that the country must take advantage of this natural resource for the development of telephone and television service and other types of advanced communications.

Endorses EEC Plan For Satellite

PA151819 Bogota EL TIEMPO in Spanish 9 Oct 86 p 6-a

[By EL TIEMPO Reporter Ana R. Luque]

[Excerpts] Colombia has agreed with the EEC recommendation to launch a communications satellite with 24 transponders to be shared by the Andean countries. Communications Minister Edmundo Lopez Gomez announced to the Sixth Senate Commission, adding that Colombia will promote the idea. [passage omitted]

Foreign Minister Julio Londono Paredes said Colombia continues to struggle for the rights of the countries located under the geostationary orbit [as published]. He said their representatives on a United Nations work commission dealing with demarcation of orbits, plan to make a special effort to stop the countries trying to disperse the group.

The communications and foreign affairs ministers were cited by Senator Felix Salcedo Baldion to explain aspects regarding the defense of the segment on the geostationary orbit, including the possibility of launching a Colombian satellite, selling services to other nations, and also renting Intelsat channels. [passage omitted]

Communications Minister Lopez Gomez said it has only recently been learned that Esco, a subsidiary of the EEC, made the recommendation for a feasibility study on an Andean communications satellite.

He explained that four alternatives have been considered, to wit: a satellite of our own with 24 transponders called Condor 1; a satellite of our own with 12 transponders and the subsequent launching of one with 24 transponders called Condor 2; use of the available capacity of Intelsat; or use of such systems as the Brasilsat and Panasat.

According to Esco's study, the most viable project is that of Condor 1, which would cost approximately \$480 million. This cost would be similar to that of the Satcol project, which was rejected for economic reasons. The satellite's signal would cover the entire region.

Lopez Gomez said the satellite's cost would be shared by the five Andean countries and this administration will make every effort to make this project a reality. He added these conclusions were reviewed by the members of the Association of Andean Telecommunications Enterprises last week and the Colombian participants will hold a meeting within the next few days. [passage omitted]

/9738

CSO: 5500/2005

COLOMBIA

FIRST DOMESTIC MICROPROCESSOR TERMINAL EXHIBITED

Bogota EL TIEMPO in Spanish 15 Sep 86 p 9-B

[Article by German Ulloa F.]

[Excerpts] Over 60,000 spectators witnessed the size and quality of the Fifth Computer and Office Equipment Fair this year. Most of these visitors, unlike those in past years, were able to enjoy over 1,000 machines exhibited in an orderly manner, thanks to the magnificent organization of this year's fair. This time the exhibitors selected and planned the display, thinking as never before about the potential users and the needs of the national market, and about the fair's duration, which this year was cut from the 8 days it had lasted in the past to 6 days. So for the first time the young people hired to man the stands did not end up exhausted and irritable, as we found on Saturday afternoon as we were taking photos and collecting final impressions from the exhibitors, visitors and members of the organizing groups.

New Products, a Matter of Faith in the Nation

The growing reactivation of imports and the optimistic atmosphere surrounding the new administration were to a large part responsible for the positive climate which has prevailed in the CORFERIAS facilities. This made it possible to exhibit a group of machines and programs of the highest and most recent technology.

Carvajal demonstrated its confidence in the nation with the introduction of the first microprocessor terminal for industrial data made in Colombia. This microprocessor is the result of dedicated work begun by electronics engineers in a new division, which for 8 months has been designing and producing high-quality and highly competitive exportable products. Many other products will be following this microprocessor in the near future. Also, Delectronica marked its entry in the educational and medical market with some interfaces which enable a user at any computer to monitor and analyze signals from instruments such as cardiographs and physics labs, areas in which our technology has not been very active in the past.

Experts like the Mexican Adolfo Guzman, a member of MCC, Alberto Garcia from Micromega, Ltd, Bernard Michaud, an educational computer specialist from Quebec, the Puerto Rican hardware designer Fernando Colon from Digital, and Siegfried Zopf, a developer from Siemens, made the conferences memorable and productive events. "Each one seemed to get better and better," some persons attending reported.

A New Generation of Colombians

A foreign exhibitor summarized the new situation for us in this way: "Colombian executives and businessmen seem to be more experienced now. On this occasion their interests have included the software available and the ways in which packages and equipment can be used to solve their problems and serve as tools for their projects. This demonstrates that Colombian businesses have matured in their use of systems."

Thanks to the varied exhibit of equipment, some with prices under 100,000 pesos, and the wide range of programs, especially the software available for engineers, architects and teachers, the exhibit responded to almost all the interests of the public. Most of the persons attending stated without hesitation that they plan to attend the next computer fair. This suggests the large attendance we can expect next year.

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CSO: 5500/2004

ST VINCENT AND THE GRENADINES

BRIEFS

TV TASK FORCE PROBE--Kingstown, St Vincent, Sept 19, CANA--A government-appointed 12-member task force set up to look into television broadcasting in St Vincent and the Grenadines has started its work. The committee was appointed by the Ministry of Information following concerns raised about the effects on the society and especially children, of U.S. television programmes reaching St Vincent and the Grenadines via satellite.

Vicentian, Millicent Iton, UNICEF (United Nations Childrens Fund) advisor to the Ministry of Education, heads the task force, whose members are drawn from the teaching profession, the media, the Chamber of Industry and Commerce, and women's and youth organisations. A spokesman for the group said individuals and organisations have been invited to submit memoranda on the entire question of TV broadcasting by October 31.

[Text] [Kingston THE DAILY GLEANER in English 20 Sep 86 p 11] /9317

CSO: 5540/008

BANGLADESH

ERSHAD INAUGURATES NORTHEAST TELEPHONE LINK

Dhaka THE NEW NATION in English 15 Aug 86 pp 1, 8

[Text]

The north-eastern district headquarters of Gaibandha was linked to the nation-wide trunk dialing system yesterday when President Ershad received a call in Dhaka from Prime Minister Mizanur Rahman Chowdhury from Gaibandha, reports BSS.

President Ershad at his Sena Bhaban residence while talking with Premier Chowdhury, who is also holding the charge of the Ministry of Posts and Telecommunications, conveyed his good wishes to the people of Gaibandha on the auspicious occasion. He also thanked all officers and employees of the ministry and the T & T Board.

During the conversation, the President described linking of Gaibandha to national trunk dialing system as another step forward for developing communication network in the country.

He expressed the hope that all the districts of the country will be brought under the NWTB system at the earliest.

Prime Minister Chowdhury assured the President that his ministry has been working in that direction to complete the government programme of linking all the districts with the national dialing grid as directed by the President. He said 16 more district headquarters will be linked to the grid during the current financial year. Twenty four district headquarters are already covered by the grid.

The President also talked to Chief Whip Mr T I M Fazle Rabbi and the Chairman, T and T Board.

Secretary, Ministry of Posts and Telecommunications, Syed Shameem Ahsan was present at Sena Bhaban on the occasion.

/13046

CSO: 5550/0165

INDIA

U.S. TEAM APPRISED OF TELECOM NETWORK PLAN

Madras THE HINDU in English 10 Sep 86 p 6

[Text] New Delhi, Sept 9--The 19-member telecommunication trade mission from the United States now here on a ten-day tour, was apprised by the Department of Telecommunication of the perspective plan to improve telecom network in India and of the prospects for American firms to collaborate by transfer of technology and knowhow besides supply of equipment.

The visiting team led by Mr H.P. Goldfield, Assistant Secretary in the U.S. Commerce Department, met the Union Communications Minister, Mr Ram Niwas Mirdha, and later had discussions with a team of officials of the Department of Telecommunications (DOT) headed by the Secretary Mr D.K. Sangal, on Monday.

Mr Mirdha noted that already the DOT had floated a global tender for import of digital transmission system and said the American companies could bid for this. He also recalled the liberalised policy of allowing the private sector to manufacture equipment required at the subscriber's premises like telephone instruments, PABX, cables etc. This, he said, offered scope for the American firms to enter into collaboration with Indian firms in their manufacture. He suggested that the American firms could avail themselves of the expertise of the Telecommunications Consultants India Limited (TCIL) for projects in third countries.

At the meeting with the officials, the visiting team was given an idea of the ambitious plan chalked out by the DOT to improve telecom services and particularly the proposal to provide telephone on demand by 2000 A.D. Mr Sangal welcomed any assistance that the American firms could offer to achieve this objective. He noted in this context that in the past the U.S. firms were not enthusiastic in transferring technology or knowhow or supplying equipment in the telecom field.

Changed position: Mr Goldfield explained that the needs of U.S. were so heavy that the entire indigenous production was used to meet them and there was very little scope for export to other countries. The situation had changed and the U.S. firms were now in a position to offer equipment and technology to other countries on mutually beneficial terms.

Bellsouth International Inc, one of the firms represented on the team, is interested, among other things, to offer its services in specialised telecom network like cellular radio, fibre optics, microwave systems and cable communications services. It is currently pursuing three proposals which include a network determining needs for new offices outside plant equipment for Mahanagar Telephone Nigam, a private network for the Steel Authority of India Limited, and a cellular and paging feasibility study with the TCIL.

Another firm--Rockwell International--is exploring a joint venture to manufacture fibre optics communication products besides analog and digital microwave products. Scientific Atlanta wants to market a wide range of products like tracking antenna systems, automatic antenna measurement systems, telecom test equipment, radar cross section equipment, multi-purpose satellite communication receivers, filters, etc. Currently, this firm is pursuing contracts for tracking antenna systems to the Defence Research Laboratory.

Another member of the team, Sperry Corporation, which has ongoing relationship with Air India and Indian Airlines, is pursuing a contract with Indian Railways. It is interested in selling mainframe computer line and other products. A wide range of telecom services like network planning, economic analysis, project management and network engineering has been offered by the Hawaiian Telephone Company whose representative is on the visiting team.

The other firms on the team are: Communication Satellite Corporation offering technical consultancy services; AT and T offering network systems, switching systems, transmission systems and information systems; Fairchild Industries Inc interested in selling medium-sized on-premises satellite earth terminals, star network communication systems, low speed time division multiple access satellite communication systems, wide range of telecom equipment and services; and ITT Asia Pacific, which is keen to market switching and transmission systems besides collaborating in local production of modern digital PABX.

/9317

CSO: 5550/0008

INDIA

REPORTAGE ON MASS COMMUNICATIONS CONFERENCE

26 August Proceedings

New Delhi PATRIOT in English 27 Aug 86 p 5

[Text]

India has an awesome task of educating 160 million children by 1990, and it could not be completed by depending upon the traditional system of education, University Grants Commission chairman Prof Yashpal said in the Capital on Tuesday.

Delivering his speech at the main plenary session of the five-day conference of the International Association for Mass Communication Research, Prof Yashpal said the use of non-formal education and the open university system were a step in the direction of fulfilling that objective.

The per capita telephone availability in the country, he said, was very low. It was very difficult and costly to provide phones in more than five lakh villages in the country, he said.

New communication technology, through satellites could be useful in fulfilling the needs of educating the masses. With the help of satellites, educational programmes could be broadcast in far flung villages.

Prof Yashpal said if receiving centres were set up in Third World countries, these could help in picking up messages from developed countries

in no time.

This facility could be used for agriculture, weather forecasting, education and extension service.

A paper circulated at the conference, based upon a research report prepared for 'Information Overload Information Underuse Project' of United Nations University, said after 10 years of fruitless efforts to change the international communications system, it made people wonder what went wrong.

Two things particularly worrying are—the Third World following very contradictory paths of complaining against imperialism and dependence in content related issues and neglect of crucial flows of specialised information on which development depends most.

Overwhelmed by debts, low productivity, unfair terms of trade, Third World can so well demonstrate the reality of this. Because of it, the linkages between knowledge distribution and Third World's sheer incompetence to bargain better in the world market should be the central issue now.

The calls for a new international information order never referred to the usefulness of information. The politi-

cal and cultural impacts of the media were discussed to the point of exhaustion, but no serious attention was paid to how useful information must be in order to upgrade the capacity to master the conditions of one's own life and fix terms of international relationships, the paper said.

The paper concluded by saying 'the countries that clamoured for information autonomy have utterly failed to assert a will to get independent in the production of information technologies'.

The plenary session was chaired by Mr James D Halloran, president of the International Association for Mass Communication Research (IAMCR). It was also addressed by Mr S T Kwame Boafo from Ghana, Mr Aggrey Brown from Jamaica, Mr Cees Hamelink from the Netherlands, Mr Softan Jakob from Hungary and Mr John Lent from the USA, add agencies.

Mr Boafo said communication technology and resources are tools which, like all development tools, can be systematically employed to aid the development process.

Penultimate Day's Session

New Delhi PATRIOT in English 29 Aug 86 p 3

[Text]

Adverse effects of crises like Bhopal gas tragedy or Chernobyl can be contained by more intelli-

gent communication, a discussion on communication ethics and responsibilities in transnational crises agreed on Thursday.

The experts were meeting under the aegis of the International Association for Mass Communication Research and conference, on the penultimate day of their five-day conference.

Professor Bob J Carrell of the University of Oklahoma, USA, drew a matrix that can help organisations gauge communication needs in such crises situations. Prof Doug Newsom of Texas Christian University, USA, pointed out that ideologically divergent approaches to communication had not made much difference in that the concerned governments failed to alert the people exposed to the dangers of Three Mile Island and

Chernobyl. She called for a global crisis communication plan to form part of other international agreements.

Dr Dean Kruckeberg of University of Northern Iowa, USA, called for a comprehensive code of ethics to help transnational corporations respond to crises. While such a code for handling crises communication would be difficult, the group agreed that it should definitely be attempted.

In two comprehensive sessions devoted to communication technology and its role in international communication, discussion ranged from wide-ranging global issues to specific uses of

technology for mobilising social action.

Dr H Fredrick of USA said that an electronic aggression in the form of religious, political, and commercial propaganda has invaded Nicaragua. This is a violation of international norms, he said.

Professor K Nordenstreng of Finland warned that if the western media continue to do to Unesco what they did to the League of Nations, the organisation would fold up.

Mr K K Jayan, of the University of Kerala, presented a case study on how a wide communication package was used to mobilize a voluntary movement in Kerala. As a result, people were more aware both of basic information in science and its social implications.

INDIA

MOVE TO COUNTER CHINESE BROADCASTS

Calcutta THE STATESMAN in English 1 Sep 86 p 9

[Text]

HYDERABAD, Aug. 31.—With a view to countering Chinese broadcasts, the Government of India, under the North-Eastern Region Television Expansion Programme, had decided to install 5,000 direct reception colour monitor sets in the region in the next three years.

Supplying the sets for the Rs 39-crore project of the Ministry of Information and Broadcasting had been entrusted to the Hyderabad-based Electronics Corporation of India Limited, a public sector undertaking under the Department of Atomic Energy. Its group general manager, Mr S. N. Telang, said here yesterday. Cost of the sets would be Rs 12 crores.

A Rs 30 crore project for the manufacture of main frame computers based on fourth generation technology, using large scale integrated circuits, would be set up near the ECIL complex. Mr B. S. Prabhakar, its managing director, disclosed. The computer, Cyber-180, in two models, would be produced in collaboration with a reputed American company.

The computers, costing between Rs 80 lakhs and Rs 1.5 crores, would have wide-range uses in engineering and scientific applications. ECIL proposed to send about 25 of its scientists to the USA for training by next month end and the project was expected to go on stream next year, Mr Prabhakar said.

ECIL had received a letter of intent from a Russian firm for the supply of 90 satellite earth stations, worth over Rs 60 crores, Mr Prabhakar said.

ECIL's computer-based data acquisition system had been commissioned at the Ratchur thermal power plant of the Karnataka Po-

wer Corporation. These systems had been designed, engineered and installed entirely through its in-house know-how.

In the consumer electronics field, ECIL had produced over 75,000 TV sets, including 40,000 colour sets, during 1985-86. A licence to manufacture VCRs was expected shortly, Mr Prabhakar said.

The instruments group of ECIL had manufactured and supplied electronics systems for use in vital sectors, including the Defence Ministry.

ECIL had supplied and installed several security systems like the X-ray Baggage Inspection System and the Automatic Fire Alarm System at the domestic and international airports in New Delhi and Bombay. Its production target for 1986-87 was of the order of Rs 140 crores, Mr Prabhakar said.

/9274

CSO: 5550/0006

INDIA

PLANS TO IMPROVE TELECOMMUNICATIONS TOLD

Madras THE HINDU in English 1 Sep 86 p 6

[Text]

NEW DELHI, Aug. 31.

The technology "mission" to ensure better communications, prepared by the Department of Telecommunications (DOT), envisages a massive investment of Rs. 55,000 crores over the three successive Plans from the current one, and has, as its main objective, customer satisfaction in the telecommunications field as a whole.

If the mission fructifies, by 2000 AD, telephone connections will be provided on demand, international subscriber dialling will be available to all countries, the fault rate reduced to less than one per telephone a year, the call success rate will be over 90 per cent for all categories and telegrams will be delivered within 12 hours anywhere in the country.

In a recent presentation of the mission details to the Science Adviser to the Prime Minister, Prof. M. G. K. Menon, the DOT officials have conceded that the telecom service today falls far short of the customer expectations with poor availability of connections, inadequate reliability and poor sensitivity to the customers. There are only 3.2 million connections now and the waiting list is a million. The average waiting period is four years and the maximum waiting period, 20 years. There are only 20,000 public call offices for 150 millions population in the urban areas and 22,000 for 5.7 lakh villages.

Investment projection: According to DOT, the investments required will be Rs. 6,000 crores during the Seventh Plan, Rs. 15,000 crores during the Eighth Plan and Rs. 34,000 crores in the Ninth Plan, to achieve the objectives of the mission.

Objectives have been worked out in time-frames those to be achieved in a very short run of a year, in two years, by the end of the Seventh Plan period and by the end of the Eighth Plan period.

Improving customer interface: By the end of 1990, the mission seeks to improve customer interface by simplifying rules and procedures, on the one hand, and by staff

training and customer orientation to the staff, on the other. The service quality will be improved by reducing the fault rate and increasing the call success rate. At present, the national fault rate average is one per telephone for every quarter or four a year. The worst is one fault in 45 days and the best is one in a year. The national average is sought to be reduced to 2.5 a year by 1990 and to less than one by 2000 AD.

The call success rate now averages 95 per cent for local calls, 70 per cent for junction calls and 20 per cent for STD calls. It is sought to be improved to 97 per cent by 1990 and 99 per cent by 2000 AD for local calls, to 90 per cent and 98 per cent for junction calls and to 50 per cent and 90 per cent for STD calls respectively.

Accessibility is sought to be improved considerably by increasing the local public telephones to five per cent of the exchange capacity and increasing the STD public telephones to 10,000 and rural telephones to 30,000. The waiting period for selected services like telex, leased circuits and satellite business terminals is also sought to be reduced and new services introduced.

Plan to go digital: The DOT feels that technology inputs needed are being worked out, but the plan is to go digital in a big way. The Telecommunications Research Centre (TRC) is being reconstituted into two organisations- telecommunications engineering centre and telecommunications research centre.

The former will be an integral part of the DOT, responsible for finalising the specifications, carrying out initial tests and field trials, approving introduction of new technology products into the telecom network and helping to solve the day-to-day network problems. The latter will be an autonomous society with funds flowing from DOT and the public sector undertakings in the field of telecommunications to take up development of specific telecommunication products for the network in a time-bound programme.

INDIA

BRIEFS

TELEGRAM DELIVERY IMPROVEMENT--Cochin, 30 Aug (PTI)--The Union Communication Ministry has initiated measures to ensure delivery of telegrams within 12 hours of booking from any part of the country, Union Communications Minister Ram Nivas Mirdha, said here today. Laying the foundation stone for the Rs 10 crore, 6,000 line telephone exchange building at Palarivattom here, he said about 10,000 telegraph offices would be brought on the automatic message switching system within the next two years to achieve this objective. The Rs 85 crore project would also include replacement of all electro-mechanical teleprinters with electronic teleprinters. The Minister, who had talks with top officials of the Kerala Electronic Development Corporation (KELTRON) at Trivandrum yesterday, said KELTRON would take up the manufacture of indigenously developed store and forward telegraph systems (SFT) and pulse code modulation (PCM) systems which would help quicker transmission of telegrams. [Text] [New Delhi PATRIOT in English 31 Aug 86 p 5] /9274

JAMMU, KASHMIR PHONE LINK--Srinagar, 28 Aug--Jammu and Kashmir will be connected with 14 countries through International Subscriber Dialling System (ISDS) in the current financial year. The countries are Britain, the United States, Australia, Austria, Belgium, France, Hong Kong, Italy, Japan, Holland, Malaysia, Singapore, West Germany and Turkey. Disclosing this at a press conference in Srinagar today, the general manager telecommunications, Jammu and Kashmir circle, Mr P. K. Khindri, said several other countries would be linked with the state through this facility in the next five years. [Text] [Calcutta THE TELEGRAPH in English 29 Aug 86 p 7] /9274

SUPER COMPUTER NETWORK--Pune, 30 Aug (PTI)--Four super computers would be linked with district headquarters with the help of a satellite for instant information on water and power research by next year, Dr Z. S. Tarapore, director of the Central Water and Power Research Station (CWPRS), said here today. Speaking at the inaugural function of a seminar on "computer-based integrated information system", Dr Tarapore said the information explosion will cut down distance and time in supply of the solution and information on design and research aspects of water and energy resources. He said "a super computer is already working at Delhi, while another will be commissioned in September at Pune and two others at Hyderabad and Bhubaneswar for the operation, control, data acquisition and analysis relating to water and power resources which will be connected with district headquarters through satellite. Dr Tarapore said the National Information System for Science and Technology (NISSAT), UNISCO and the UNDP (United Nations Development Programme) aided

Rs 1.76 crore "water and power information system (WAPIS) was commissioned at CWPRS (Pune) and the Central Water Commission (CWC) and the Central Board of Irrigation and Power (CBIP) at New Delhi in 1982. The resident representative of UNDP, G. N. Hamdy, said the total project spanning a period of about five years through May 1987, entails UNDP inputs of 800,000 US dollars by way of expatriate expertise, training abroad and equipment". "The Union Government's own commitment to the project is more than Rs 8.8 million", he said. Mr Hamdy said the computer work station of the project would alone cost 300,000 US dollars, which would be processed through UNISCO. [Excerpt] [New Delhi PATRIOT in English 31 Aug 86 p 5] /9274

CSO: 5550/0007

IRAN

PLANS FOR NEW TELECOMMUNICATIONS EQUIPMENT REPORTED

LD271806 Tehran Domestic Service in Persian 1630 GMT 27 Sep 86

[Text] A production line for the manufacture of field telephones was commissioned today, the sixth day of War Week--named Economic Jihad Day. The ceremony was attended by the ministers of defense and of post, telegraph, and telephone. The manufacturing unit is part of Iran Communications Industry, a subsidiary of the Defense Industry Organization.

Commenting on the production of this particular telephone system, the director of Communications Industry said this is a fully electronic system with a much higher efficiency than foreign-manufactured telephones. Pointing out that the new system is at present being used by Islam combatants in various operational theaters, he referred to other projects on hand by the communications industry. He said: Together with military production, certain studies have already been carried out concerning the required commercial communication systems. One of these systems is a calling device [farakhan] which enables individuals to establish contact from their homes with those they wish to speak to.

Then there is another project involving a mobile telephone system which can be used within city limits and on roads. Furthermore, certain steps have also been taken to manufacture a device to transmit pictures as well as the production of personal minicomputers.

/9738

CSO: 5500/4701

NIGERIA

BRIEFS

ANAMBRA TELEPHONE EXCHANGE--The Federal Military Government has invested N122 million in the provision of telecommunications facilities in Anambra State. Communication minister, Col Tanko Ayuba, announced this at Nsukka, at the commissioning of a 2,000 line capacity ITT Penta Conta Telephone exchange in the area. Col Ayuba said that the commissioning of the Nsukka telephone exchange brings to ten, the number of such exchange in the state. He disclosed that the Federal Military Government spent N10.209 million in the completion of the project. The minister announced that a new digital International Telephone Switching Centre (ITSC), similar to the ones in Lagos, and Kaduna, was being proposed for Enugu. According to him, "the ITSC will be linked directly to the two international gateway at Lagos and Kaduna via dedicated circuits." Col Ayuba announced that 60 circuits through Port Harcourt-Benin-Auchi-Akure-Ibadan were provided to connect Enugu-Lagos with another additional 72 circuits, aimed at providing easy accessibility to and from the Eastern states. The Chief of Air Staff, Air Vice Marshal Ibrahim Alfa, who officially commissioned the project, made a trunk call to Lagos that got the Chief of General Staff, Commodore Ebitu Ukiwe. In their welcome address, the people of Nsukka called for an international direct dialing telephone system, that could enable them [to] have contact with their overseas friends. They appealed to the federal government to help speed up communication within the local government that make Nsukka zone, by establishing telephone facilities in all the local governments of Nsukka. The people appealed to the minister to direct the installation of a telephone service at the Enugu Ezike post office completed nine years ago. Photo shows Air-Vice Marshal Ibrahim Alfa cutting the tape to declare the exchange open, watched by Mr Uchidiuno NITEL, MD (right) and Col Ayuba (2nd from left). [Text] [By Ikechukwu Ani and Iyke Iloka] [Enugu DAILY STAR in English 17 Sep 86 p 4] /9274

CSO: 5500/1

SENEGAL

TELECOMMUNICATIONS LOAN AGREEMENT SIGNED WITH FRANCE

AB021245 Dakar Domestic Service in French 2200 GMT 1 Oct 86

[Excerpts] The French Central Fund for Economic Cooperation [CCCE] and the Senegalese National Telecommunications Company [SONATEL] on 1 October signed a 7.5-billion CFA franc loan agreement for the partial funding of SONATEL's project known as the Grand-Dakar Project. Moussa Toure, secretary of state in the Ministry of Economy and Finance, signed on behalf of the government. Ibrahima Bayo was present at the signing ceremony this afternoon.

[Bayo] Well, during the ceremony, Moussa Toure underlined the exemplary nature of the cooperation between Senegal and France, the periodicity and the volume of CCCE contributions, and the priority sectors in which its funds are invested. One of such sectors is the telecommunications which the minister said constitutes the very basis of the development of a country.

[Begin Toure recording] The Grand-Dakar Project, a very ambitious project, will require 16.5 billion CFA francs. The CCCE, as we have said, will provide 7.5 billion CFA francs, that is 45 percent, while SONATEL will provide another 7.5 billion, and 2 billion will come from the private sector. [end recording]

This loan brings to about 14.750 billion CFA francs the CCCE's loan to Senegal for the development of our telecommunications. This afternoon's loan is for 17 years with a 5-percent interest rate and will enable the SONATEL to establish new telephone exchange centers for 11,000 lines [words indistinct].

/8309

CSO: 5500/13

SOUTH AFRICA

SADF UNVEILS NEW COMMUNICATIONS SYSTEM

MB251405 Johannesburg SAPA in English 1308 GMT 25 Sep 86

[Text] Pretoria 25 Sep SAPA--A multi-million rand South African Defence Force Communication system, providing "guaranteed" communication between units anywhere in the country, was unveiled at the official opening of the Wonderboom military base north of Pretoria today.

The project officer of the "ebbehout" system, Commandant John Calmeyer, told military correspondents the system had been linked with the international communication system, enabling "an officer sitting under his favorite thorn tree (on the border) to talk to anyone he wants to." The system used the tropo-scatter effect--the bouncing of radio waves off the ionosphere--obviating the need for line-of-vision micro-wave links.

But the system used micro-wave links as well to provide a complete command and control telecommunications system for the entire defence force, and certain state departments. Telegraphy, speech, facsimile and data transmission were all accommodated by the system, which also utilized digital technology, commandant Calmeyer said. Ebbehout enabled any commander in any unit to communicate with any other commander, no matter where they were, in top secret mode, he said.

The system functioned according to the principle that no facility within it may be off-line for more than 30 minutes within any 24-hour period. It also had auto-alarms and fail-safe systems.

Commandant Calmeyer said ebbehout had first been "conceptualized" in 1968 and formally approved in 1972. It had been thoroughly tested during a military exercise called operation Thunder chariot. Ebbehout was possibly the most technologically advanced system of its kind in the world, if one excluded systems which used satellites, but even that was debatable, the commandant claimed. The system would be continuously updated, while other projects, one of which entailed satellite technology, were also being run.

/12624

CSO: 5500/12

SOUTH AFRICA

BRIEFS

NEW TV TRANSMITTER ANNOUNCED--A new television transmitter to serve the southern parts of Pretoria North and surrounding areas is to begin operating next Monday. The transmitter is one of several low-powered transmitters being introduced by the SABC to improve television reception in certain areas. The station will transmit a signal of 20 watts each for TV1, TV3, and TV4. The transmission of TV1 will operate on channel 55, while that of TV3 and TV4 will operate on Channel 59. The first month of operation will be a test period, during which time transmission may be interrupted without warning or apology, in order to carry out necessary adjustments or correct faults. [Text] [Johannesburg Domestic Service in Afrikaans 0830 GMT 26 Sep 86 MB] /12624

CS0: 5500/12

4 November 1986

ZIMBABWE

SATELLITE DISHES WILL RECEIVE OVERSEAS TV, RADIO PROGRAMS

Harare THE FINANCIAL GAZETTE in English 3 Oct 86 p 5

[Text]

A LOCAL engineering company, Hubert Davies, recently started manufacturing satellite dishes which can receive overseas television and radio programmes. The project is probably the first of its kind in this country.

Managing director, Mr Keith Batty, said that the company became interested in the manufacture of satellite dishes about two years ago, following the success of a similar project in America where hundreds of thousands of dishes have already been installed at private homes.

Through research, it was found that Zimbabwe could receive television and radio signals from the several orbiting communication satellites around the earth, because of its proximity to the equator.

The company has already firm orders for about 32 dishes, and plans to make 100 by September 1987, he said. "We are installing the first one at the moment. It only works on colour television sets but the picture quality is excellent"

The dish, about 6m in diameter, is being made from local steel, and

costs about \$3 500. However, there are other essential electrical components that have to be imported from countries such as America, Japan or South Africa, which could cost another \$3 000.

Mr Batty said that the company will not be responsible for the imported components, and individual buyers will be required to apply for import licences from the government.

"Unfortunately, most of the channels that can be received at the moment are not English. However, there are several channels one can tune to, especially the American programmes, live football coverage and even the Asian games. (A satellite can carry up to 16 channels)

"A lot of people I have spoken to are very keen to keep abreast with world news and television programmes, and are interested in the dishes. We can also export to neighbouring countries but at present, we do not know what are the restrictions and regulations in these countries", said Mr Batty.

/9274

CSO: 5500/15

USSR

BRIEFS

TASS: SOUTHEAST ASIAN AGREEMENTS--Ho Chi Minh City, 25 Sep (TASS)--An agreement was signed here on Wednesday on the expansion of cooperation in the sphere of information, between TASS and the VIETNAMESE NEWS AGENCY VNA. Also signed were agreements on cooperation between TASS and the Lao News Agency, KPL; and the Cambodian News Agency, SPK. The agreements were signed by Sergey Losev, TASS general director; Dao Tung, VAN general director; (Bonteng Vongsa), KPL general director; and (Em Sam An), SPK general director. They were taking part in a conference of heads of news and press agencies of the socialist countries in Ho Chi Minh City. Hoang Tung, secretary of the Vietnamese Communist Party Central Committee, was present at the signing. [Text] [Moscow TASS International Service in Russian 1137 GMT 25 Sep 86 LD] /9738

CSO: 5500/1001

EUROPEAN AFFAIRS

JOINT ITALIAN, GERMAN, FRENCH CAD-VLSI PROJECT

Turin ELETTRONICA E TELECOMUNICAZIONI in Italian May-Jun 86 pp 69-77

[Article by Engr Girolamo De Vincentiis, Dr Luciano Leproni, CSELT (Telecommunications Research and Study Center), Turin: "Planning Large-scale Integration Circuits"; manuscript received by editors on 19 February 1986.]

[Summary]

Very large scale integration circuit project. The paper describes the CVT research project (CAD-VLSI for Telecommunications), whose aim is to implement CAD tools and methodologies for the design of VLSI integrated circuits. The CVT project, partially funded by EEC within the "Microelectronics Programme", has been launched and coordinated by the research centers for telecommunications of Italy (CSELT), France (CNET) and Germany (FI/DBP). The project involves 28 Research Organizations in the above 3 Countries; it has 3 duration years and ends in 1986. The paper outlines the reasons for the research and the main features of the implemented integrated CAD system. This includes: a) programs for design data management and designer-machine interactions; b) system for circuit description, analysis and synthesis at the architectural level; c) tools for test pattern generation and validation at the architectural level; d) a system for interactive generation of chip floor-plan; e) various tools for layout generation of functional blocks. The paper concludes with information on the results obtained and the foreseen research developments.

[Text] 1. Introduction

The CVT project ("CAD-VLSI for Telecommunications") is a research project aimed at developing advanced planning techniques based on the use of the computer ("CAD: Computer Aided Design") with relation to very complex integrated circuits (VLSI: Very Large Scale Integration).

This project is promoted and coordinated by the following: the Telecommunications Research Centers in Italy (CSELT [Telecommunications Research and Study Center], Turin, of the STET [Telephone Finance Corporation] Group), in France (CNET [National Telecommunications Study Center, Grenoble]), and in Germany (FI/DBP [Research Institute of the German Federal Post Office Attached to the Telecommunications Central Exchange, Darmstadt]); these three research centers

coordinate and collect the contributions from the principal research centers working in the CAD area for integrated circuits in the respective countries. Figure 1 shows the complete setup of the university and industrial laboratories involved.



Figure 1. Agencies participating in CVT (CAD-VLSI for Telecommunications) project

Key: 1. Principal contractors 4. University of Genoa
2. Turin Polytechnical College 5. University of Bologna
3. Milan Polytechnical College 6. Universities in FRG

The CVT project was launched in 1983 and is scheduled to be completed in April 1986; the resources committed over 3 years of research came to a total of 333 man-years, including 132 supplied by Italian agencies (50 by CSELT). The EEC shares in the costs to the extent of 50 percent and included the project among those approved for the Microelectronics Program.

The project's purpose is to build a prototype of an integrated CAD system which will enable telecommunications systems to plan the systems directly "on the basis of silicon," in other words, by making full use of the potential of modern microelectronic technology.

2. Motivations behind CVT Project

There is no doubt that the performances of modern industrial systems are determined to an ever greater degree by the technologies that are employed. In particular, it is fundamental for planners of telecommunications systems to be able to master and exploit the technology of VLSI circuits because this can make it possible to overcome the barriers represented by cost, complexity, and reliability which still restrict the performances of telecommunications systems.

The problems to be solved are not so much tied to the technology (devices containing up to one million transistors are already in production) but rather to the capacity to plan in terms of acceptable time frames and costs. For example, making designs pertaining to a circuit, such as the one shown in Figure 2 (a voice synthesizer with a total of about 70,000 transistors designed by CSELT) as of now—even with the aid of CAD equipment available commercially—entails an expenditure of several billion lire and a planning time of several years.

Figure 2. Example of integrated VLSI circuit (voice synthesizer designed by CSELT with NMOS 4 μ m, made by SGS). [not required]

It follows from this that VLSI circuits are now being designed and made only when they give a guarantee to the effect that they can be used in a large quantity so as to be able to distribute the project's cost over a large number of products; this is true of memories and microprocessors which are used in various industrial applications and sectors.

But it is true that, if it were possible to have integrated circuits designed on an ad-hoc basis for specific applications (the so-called ASIC's--Application Specific Integrated Circuits), it would be possible to achieve a radical design simplification in telecommunications systems; it would thus be possible to reduce their manufacturing cost, size, and power consumption while at the same time improving their performances and their degree of reliability, also achieving greater industrial protection (use of electronic components owned by the user).

To attain this purpose, it is necessary drastically to reduce the design times and costs of VLSI-ASIC circuits; a reasonable objective is to plan integrated circuits consisting of several hundreds of thousands of transistors with time frames and costs (several months, several hundred of millions of lire) that would be comparable to those now necessary for the development of multilayer printed grids.

This leads to the need for drastically simplifying the traditional methodology used in designing integrated circuits, as shown in the rough diagram given in Figure 3.



Figure 3. Traditional design diagram for VLSI circuits

- | | |
|---------------------------------|------------------------|
| Key: 1. Performance description | 8. Functional project |
| 2. Structural description | 9. Optimization |
| 3. Logic [software] description | 10. Functional project |
| 4. Physical description | 11. Logic project |
| 5. System project | 12. Verification |
| 6. Analysis | 13. Physical project |
| 7. Synthesis | |

The traditional design process is developed through a long series of successive refinements of the circuit's functional and structural description; but it would instead be necessary to be able to have synthesis programs capable of automatically generating the design of the manufacturing masks (layout) on the basis of a description of the circuit on a high level (function to be performed or simply architectural layout with functional blocks).

These programs--usually called "silicon compilers," because they are supposed to perform a task similar to the task performed by the high-level language compilers in use for the development of software--are an ambitious objective of the most advanced CAD research activities.

Some results on the route of "silicon compilation" have by the way already been achieved in the case of circuits with logic families (the so-called "gate arrays") or standard cells. These circuits (for which figures 4 and 5 show some achievements of the CSELT based on SGS technology) are designed at the level of the logic diagram, using and interconnecting the elementary logic functions or the slightly more elementary functions (cells) for which mask designs are already available and where the operating mode is known (for example, the switching time).

Figure 4. Example of integrated circuit with logic families ("gate array"); the photo at the bottom shows a part of the photo on top, enlarged about eight times.

Figure 5. Example of integrated circuit with standard cells

Circuits of this type are called "semicustom" semiconductors by manufacturers since they employ functions of the standard type to put together circuits that are of specific interest to the customer.

The peculiar aspect of these circuits is that programs are available for them which make it possible automatically to obtain the layout from the logic diagram; this is possible since, as we said before, the design for the manufacturing masks (layout) of the cells is already available and, moreover, the problem of interconnection is simplified by the fact that the cells were given standardized shapes and dimensions (as we can see, for example, in detail in Figure 4 [not required]).

With the help of the "semicustom" methodologies, one can economically design circuits with a somewhat limited complexity, on the order of several thousands of elementary logic gates. Their field of application however is rather significant; it is certainly true that these circuits are being used increasingly and that their dissemination is based on the recent assertion of commercial CA² systems based on a computer set aside for a single user, the so-called work stations.

It is however quite clear that systems based on circuits of this type and also on advanced standard products, such as microprocessors with 16 or 32 bits, with memories of 256 kbits, while permitting better product quality and savings in production, do not turn out to be substantially different in

architectural terms from those designed during the second half of the 1970's. The move toward a successive system generation, based on ad-hoc designed components, remains entrusted to the possibility of economically and in a short time designing very complex circuits through more powerful "silicon compilers."

The prospects because valid instruments of this type would be commercially available in Italy over the next several years are rather poor. The "silicon compilers" are currently the subject of research being done by the most advanced industrial laboratories and normally some time passes before the results of this research reach the market; here it suffices to think of the CAD for semicustom circuits which have been in use for several years now by the Bell Laboratories; they are only now appearing in Italy in the work stations; and anyone who has used these systems knows from experience that they are being placed on the market in an often premature development stage, with insufficient performances and a rather low degree of reliability.

While commercial prospects are rather poor, the situation concerning access to information available at American universities and laboratories is no better; this situation is rendered increasingly difficult if not impossible by American federal standards.

There is therefore a danger that, within a few years, big companies, such as IBM, AT&T, and NEC, for example, which for quite some time have been devoting much in the way of resources to the development of electronic CAD, will be able to put on the market electronic systems based on VLSI-ASIC's which cannot be equalled, in terms of price and performances, by similar systems built with the traditional components; the "imitation" of these systems will also be a very tough job, precisely because of the difficulty of reproducing sophisticated integrated circuits that are not available commercially.

Hence the very existential requirement for the builders of electronic systems not to fall behind in the capacity to design silicon; hence the motivations which several years ago persuaded the EEC to promote, through the "Microelectronics Project," research in the CAD sectors for integrated circuits, giving preference to cooperation at the European level.

It was as a matter of fact unthinkable to tackle research projects designed to work out a complete system of CAD for VLSI by relying only on the resources available within the company or even national context because the problems to be tackled are difficult and complex; this is an undertaking that involves experts from various professional fields, such as physicists, technologists, mathematicians, data processing specialists, electrical circuit specialists, and system engineers; the amount of work to be done is such as to require hundreds of man-years.

Fully aware of these necessities, which are particularly strongly felt in a research center institutionally devoted to promoting the development of telecommunications through the design and construction of systems with a high innovation content, the CSLT in 1982 took the opportunity offered by the EEC and promoted the initiative of a vast collaborative effort with counterparts

European research centers; this initiative was specifically expressed through the implementation of the CVT project.

3. The CVT System

3.1. System's Salient Features

The CVT is a computer program system for supporting the design of integrated VLSI circuits devoted to applications in the field of telecommunications.

There are two main guidance criteria which determine its characteristic features: flexibility and efficiency.

As regards flexibility, the system was given a modular structure (see Figure 6) which makes it possible to give the designer the best instruments for each field of application. The system, as a matter of fact, includes specific instruments for designing the architecture of microprocessors, of numerical signal processors and of control units; moreover, the system can be adapted to the reasoning style inherent in each designer, thus enabling him to work on the basis of his own preference either on graphic diagrams or on text descriptions and to generate the "layout" by making selections among alternative methodologies, in other words, automatically, either in a symbolic manner, or manually, in the traditional manner (that is to say, with the help of a specialized graphic system), or simply through the use of procedural language.



Figure 6. "Software" structure of CVT system (CAD-VLSI for Telecommunications)

- | | | |
|------|----------------------------|--|
| Key: | 1. Designer | 10. Designer's intelligent assistant |
| | 2. Interface with user | 11. Symbolic layout |
| | 3. Simulators at RTL level | 12. Circuit simulators |
| | 4. Architecture synthesis | 13. Systems for generation of masks |
| | 5. Data base system | 14. Models of transistors |
| | 6. Layout planning | 15. Instruments generated by CVT project |
| | 7. Testing aids | 16. Available instruments |
| | 8. Software simulators | 17. Layout control instruments |
| | 9. Future connection | |

As regards efficiency, the objective pursued here was to cut the costs and the design time down to at least one-fifth compared to those necessary by using only instruments available on the market today.

This is achieved through the use of instruments that are complementary with respect to those normally in use; here are the main instruments developed within the context of the CVT project and they will be illustrated below (see Figure 7): instruments for the definition and design of the system's architecture, that is to say, the functional block diagram; at the same level, instruments for the generation and checking of test sequences; programs for generating the circuit's block planimetry (floor plan layout); programs for the automatic synthesis of the layout of specific software/circuit functions.

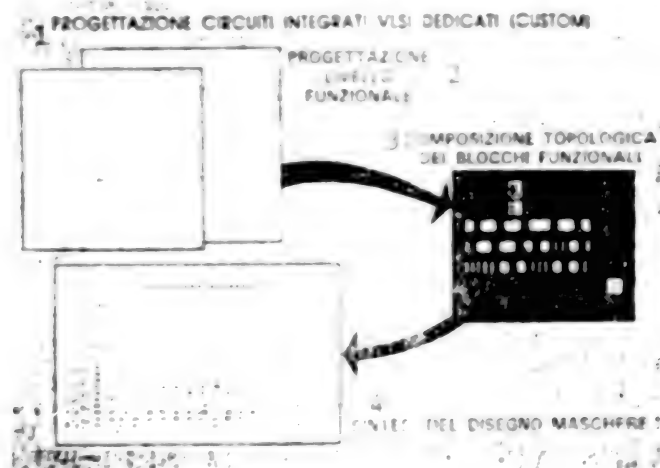


Figure 7 Simplified design methodology

Key: 1. Design of specifically allocated integrated VLSI circuits (custom) 3. Topological makeup of functional blocks
2. Design, functional level 4. Synthesis of mask design

Furthermore, to attain the above-indicated flexibility and efficiency features, considerable resources were devoted to the preparation of the necessary software and hardware infrastructures.

In particular, a software diagram of standard data was adopted for all programs and the software was made for managing the data base. Moreover, a supervision program was worked out and it was given the task of helping the designer both by guiding him in the choice of the CAD instruments to be used during the various work phases, and by supplying him with an up-to-date situation of the state of progress of on-going work.

As regards the hardware, a hierarchical system of calculating machines was adopted, as shown in Figure 8. The work stations permit efficient interactive use of the system, the Data Manager (DM) performs the heavy-duty work, while some less powerful numerical processing functions are assigned to a more powerful centralized computer that, to allow the work stations, through the local grids,

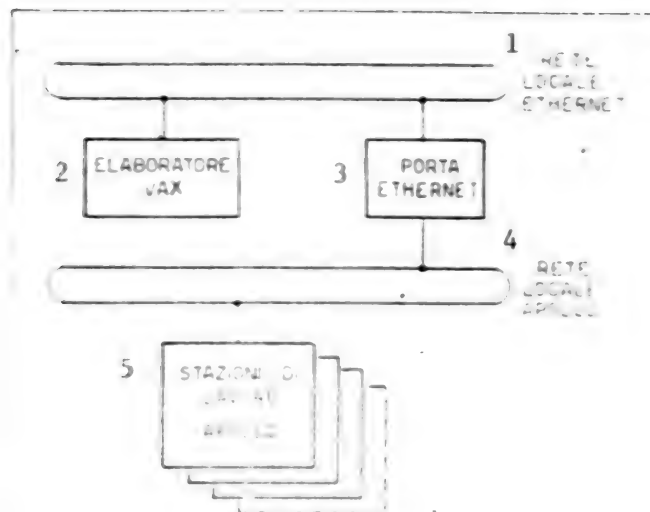


Figure 8. "Hardware" structure of CVT system

Key: 1. Local ethernet grid 4. Local Apollo grid
 2. VAX data processing machine 5. Apollo work stations
 3. Ethernet gate

3.2. Software Architecture

A circuit is essentially designed in two phases: description of functional nature of circuit (input-output behavior and diagram of calculations to be performed in order to achieve said behavior); sequence of transformations of functional description until said article is obtained.

In the case of integrated circuits, the description of the produced article consists of the definition of the geometry of the masks to be used in the photolithographic manufacturing processes, observing the rules representing the tolerances of the manufacturing process itself.

In this context, the CVT is a complex of programs that makes it possible to pin down the specifics of the high-level performance of the circuit and that supports the operations involved in the transformation of the performance description until one gets the description of the design of the masks.

The programs (or instruments) can be grouped logically according to the diagram given in Figure 9

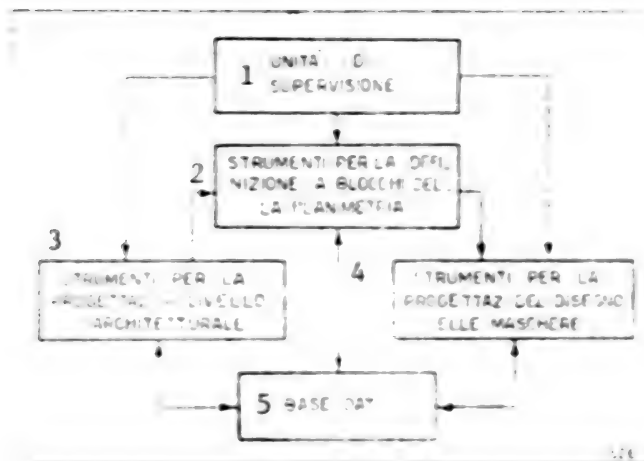


Figure 9. Architecture of CVT software

- Key:
- | | |
|--|---|
| 1. Supervision unit | 4. Instruments for planning the design of the masks |
| 2. Instruments for definition of floor plan layout | 5. Data base. |
| 3. Instruments for design on architectural level | |

3.3. Principal Application Programs

3.3.1. Instruments for Design on Architectural Level

As we said earlier, the field of application of the CVT system is very vast; with its help, as a matter of fact, one can design programmable machines, machines devoted to a specific application, and control units.

Here are the planning phases which are supported by the instruments incorporated in the system.

(a) Spelling Out Functional Specifics

These specifics concern the following, depending on the above-listed classes of machines:

- (a₁) definition of repertory of instructions and description of their implementation through microinstructions;
 - (a₂) specifics of conversation between machine and surrounding environment and description of algorithm, made by machine, through flow of micro-operations;
 - (a₃) specifics of machine in finished states which will model the control system.
- (b) refinement of description of functional specifics, through successive incremental steps, until obtention of detailed description of machine's logic-arithmetic unit;

(c) functional specifics of control unit regarding flow of logic-arithmetic operations;

(d) synthesis of control unit according to the following alternate styles or a combination of same:

(d₁) machine in states finished with PLA techniques;

(d₂) microprogram;

(d₃) self-timing circuits.

(e) checking operation through simulation.

(f) checking diagnosticability and generation of test sequences.

The product of this design phase is a diagram illustrating the structure of the circuit made up of functional blocks at the transfer level between registers (typically, ROM, RAM, registers, counters, multiplexer, bus, etc.).

An incomplete list of the main instruments used in supporting the above-mentioned phases is given in Table 1.

Table 1. Instruments for Design at Architectural Level

Name	Function	Agency Responsible for Development
KARLENE	Text language for mixed performance and structural descriptions	IMAG
ABLED	Graphic editor for structural descriptions	CSELT
KARL III	Test language and simulator for structural descriptions	University of Kaiserslautern
ASMA	Language for description of machine with finished states	CSELT
FSM	Finished-states machine generator	University of Karlsruhe, Milan Polytechnical College, University of Genoa
TIGER/FERT.	Programs for generation of testing sequences and for checking in case of failures	CSELT OLIVETTI
EDIFICE	Generator of numerical filters	CNET
DACAPO	Programs for synthesis of self-timing circuits	University of Dortmund

3.3.2. Instruments for Defining Floor Plan Layout

Schematically speaking, the result of design at the architectural level is illustrated in Figure 10.

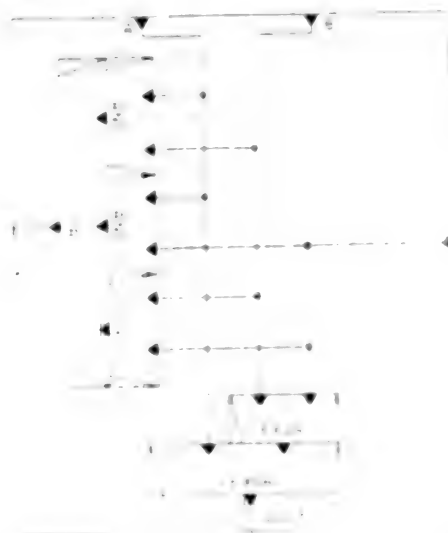


Figure 10. Example of ABL diagram (A Block Language)

The data that are relevant for this, in other words, the list of functional blocks and their interconnections, are worked out by a set of programs called ARIANNA, made by CSELT in collaboration with the University of Genoa, to extract the floor plan layout from the design of the masks.

During this phase, the processing can be subdivided into the following logical subphases: topological evaluation of functional blocks, their positions, creation of "channels" within which will be allocated the interconnections, tracing of interconnections, compacting and possible local creation of empty spaces for introducing variants at the last moment, which is followed by further compacting.

The topological evaluation consists of establishing correspondence between the functional blocks and the "physical" blocks (cells) for which the shape and the dimension are being defined.

Visually (see Figure 11), the cells consist of rectangles that define the area within which will be extracted the layout of the corresponding logic function and of the input-output gates.

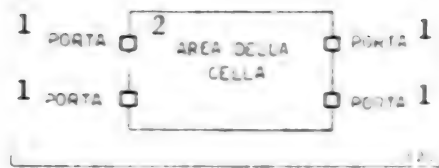


Figure 11. External view of a cell

Key: 1. Gate

2. Area of cell

The data pertaining to the cells can either be extracted from heuristics or they can be taken from a library of cells designed or inserted by the designer on the basis of an estimate founded on his own experience.

During the initial placement phase, ARIANNA calculates a bidimensional permutation for the purpose of minimizing a cost function which takes into account the occupation of the area and the total length of the connections.

For this kind of work, as for the successive work pertaining to the execution of the interconnections between the blocks, ARIANNA has available various strategies (or algorithms) which are applied according to a pre-determined sequence.

The environment in which the programs work however is interactive in the sense that the user can, at each step, close the automatic procedure to check the partial results, vary, at his discretion, the sequence of application of algorithms, manually introduce modifications that will immediately be controlled to check that no errors will be introduced.

Figure 12 shows a floor plan layout generated by ARIANNA.

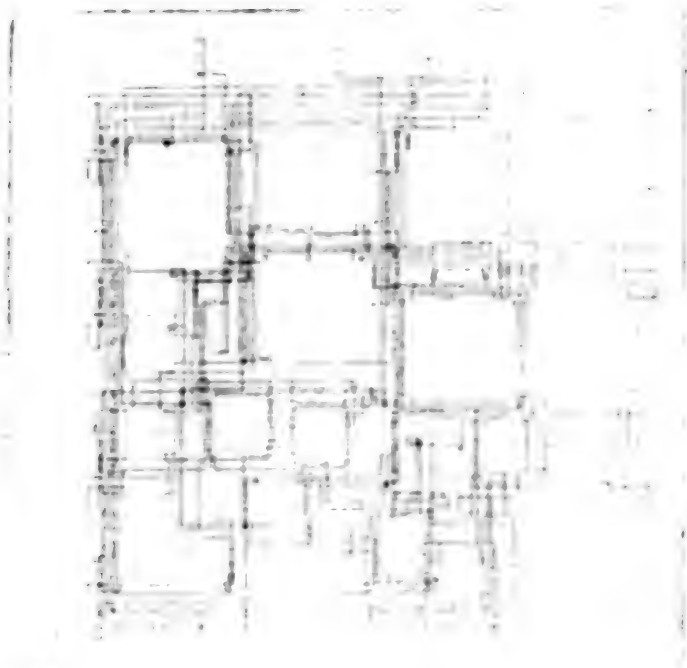


Figure 12. Example of floor plan layout generated by ARIANNA

3.3.3. Instruments for Planning the Design of Masks

During this third and last phase, the design of the masks is completed with the definition of the geometries constituting the cells.

For this purpose, various instruments are made to enable the designer, on the one hand, to make compromises between the optimization of the project and the completion times and, on the other hand, to follow his own planning style.

In particular, the system makes the following available:

(a) Automatic generators (example: FSM; Edifice). They are programs, written in PASCAL, which, at the input, accept parameters that specify both the functional nature of the cell and its physical-electrical characteristics (shape, dimension, delay time) and which, after execution, are able to generate the geometries of the masks.

(b) Environment for designing at symbolic level. In this environment, the designer can define, by means of a graphic editor, the topology of the design by specifically putting in the symbols that represent basic items, such as transistors, contacts, and loads and by designing the interconnections. Programs automatically generate the geometrical shapes corresponding to the symbols and compact the design while observing the rules of the process.

(c) A procedural language. It makes it possible to define the topology of the design by using the typical programming style. The procedural nature of the language makes it possible to define the design in a parametric form by expressing, for example, in a concise form, the repeatability of some geometrical shapes. After execution, the program can generate the compact design of the masks.

(d) A graphic editor. It makes it possible to define the exact geometries of the design. The feature that makes it more advanced with respect to the commercial models is the capacity to signal violations of rules of the process on-line.

Some programs for checking complete the list of instruments for this design phase; here they are: electrical simulators, units that extract the electrical features from the design, checker of process rules.

An incomplete list of the main support instruments for this phase is given in Figure 2.

Table 2. Instruments for Design at Physical Level

Name	Function	Agency Responsible for Development
FLAP	Automatic generator of design of PLA	University of Genoa
SYMBAD	Environment for symbolic design of cells	SGI
SELLAY	Procedural language	University of Darmstadt
EDLEVY	Graphic editor	IRG
DOMOS DOSCA	Electrical simulators	University of Dortmund
FLEX	Extractor of characteristics	ALC
BRUTUS	Checker of process rules	CND

3.4. System Programs

The objects that are produced and handled by a CAD system are very complex; they are as a matter of fact made up of a vast collection of data with multiple relations among them.

To make cooperation between the various system application programs effective, it is necessary to work out an instrument on the organization of the data and on their interpretation.

From the more general viewpoint, the agreement adopted within the CVT is illustrated in Figure 13.



Figure 13. Software diagram of data organization

Key: 1. Cell
2. Project
3. Version
4. Gate
5. Component
6. Node
7. Foot
8. Graphic elements

All of the items illustrated in Figure 13 are of the type: "is made up of"

Following the diagram in Figure 13, one design object is a cell (for example, a voice synthesizer) which is identified by a single name. A cell is a grouping of "projects" [designs] that differ from each other by virtue of the technology employed (for example, N-MOS or CMOS) for the methodology or as software alternatives (each "project" [design] is a grouping of "versions" that represent a particular temporary stage in the "project." A "version" is characterized by an external list (outline and connections with external mode, made up of "gates" that are the input-output places, "components," which are instantaneous expressions (by that we mean the characterization of a general model in a particular context) of "versions," and "nodes" which are lists of connections between "gates" and "feet" [stems] (the latter are the input-output gates of the components).

Combined with the scheme illustrated here, software procedures were made and were standardized for the creation and handling of the objects; they permit easy and efficient access to the data base management system.

Another important infrastructure program of the system is the supervisor or "monitor" program. It works in close cooperation with the data base and essentially performs three functions:

(1) giving the designer easy interaction with instruments present in the system. This is done graphically by demonstrating to the user the graph of dependences of instruments with respect to the input data and permitting only

those operations that are in keeping with the predetermined methodology and the state of work progress (see Figure 14);

(2) making available library functions which permit the holding or interrogation of the state of the free library itself;

(3) on-line aid for interaction within the system to prevent the consultation of manuals as much as possible.

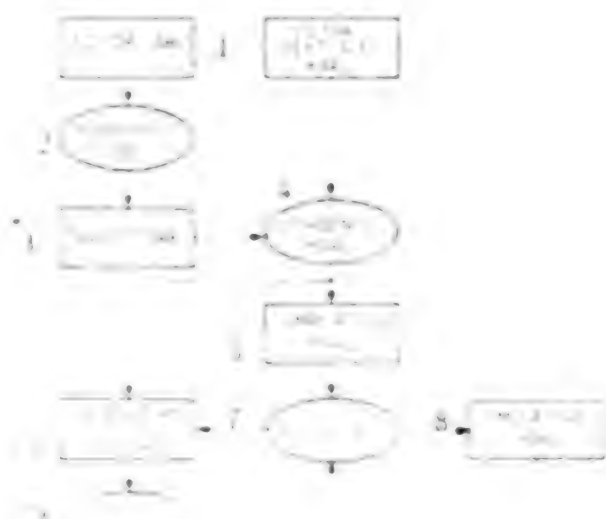


Figure 14. Example of diagram shown on display screen of "monitor" program

- | | |
|--------------------------|--------------------------|
| Fig. 1. KARL test editor | 6. Mask design generator |
| 2. RTL source | 7. RT code |
| 3. Translator | 8. KARL simulator |
| 4. KARL source | 9. Design |
| 5. KARL compiler | |

The above-described programs were made by CSAT as regards the data base and by COLT as regards the method.

1.4. Other Software Activities Included in CVT Project

In the preceding paragraphs we illustrated the basic diagram of the CAD system of the CVT, in other words, the software interconnection and the functional nature of all of these programs which are a direct help to the designer during the circuit-making phase.

Other software activities, only indirectly tied to the CAD system, were also included in the CVT project.

Among them we must, first of all, mention research conducted in the context of modifying the units (for example, junctions). The capacity to combine

hundreds of thousands of transistors on a single silicon plate is directly correlated, on the one hand, to the capacity to master geometries on the order of a micron and, on the other hand, by the capacity to anticipate the electrical behavior of the units made with such geometries.

In the CVT, with the coordination of the SGS, which is directly concerned with such problem complexes, work was done to study the physical effects to be taken into account, the equations which model them, and the numerical methods for solving such equations; also prepared were programs simulating the behavior of the transistors which yielded optimum agreement with the experimental measurements. Programs were furthermore made to extract the parameters to be used in the models that were included in the circuit simulators.

Other very important problem complexes in VLSI planning have to do with the capacity to master the complexity aspect at the system level. Against this background, it is fundamental to be able to subdivide the calculation in such a way that it can be performed simultaneously by several circuit blocks.

As part of the CVT, the Turin Polytechnical College made programs for the formal description of the message exchange record between the various blocks and for the simulation of same; the Milan Polytechnical College furthermore proposed architectural designs for the solution of specific problems that are based on repetitive arrays of simple elements, tolerating breakdowns.

Finally, we must mention the problem complexes tackled by the CSELT with relation to the formal checking of descriptions at a high level. In the context of systems designed for synthesis, it is extremely important--in order to obtain correct solutions for construction--to furnish "formally" correct descriptions at the input to these programs; this cannot be guaranteed by the normal simulation procedures.

As we know, the problem is very complex. Using techniques of artificial intelligence, very promising routes were proposed as part of the CVT and they will certainly be pursued as the research effort is carried on.

4. State of the Art and Prospects

The project is now in the completion phase. The entire prototype of the system was put together in the laboratories of the three prime contractors: CNET, CSELT, FI/DBP.

The important work of checking the performances out is now under way. For this purpose, the test vehicle used is the voice synthesizer mentioned in the introduction, which is being redesigned on the basis of CMOS technology, using the CVT system.

The first results obtained have been judged to be more than just satisfactory; in the course of the project itself, moreover, individual programs were evaluated with the use of suitable vehicles deriving from real design cases.

At the end of April 1986, the prototype will be shown to the EEC representatives and to experts coming from the most important European industrial establishments.

During the project, the EEC itself had already displayed satisfaction with the partial results that were achieved gradually. Proof of this is the acceptance of a research program, called CVS (CAD for VLSI System), which will be started at the end of the CVT and which will be based on the results achieved in the CVT itself.

The purpose is to keep the design steps few and the design times short for circuits with a complexity of around one million transistors.

Here are the basic research development lines included in the CVS project:

parallel and regular architecture: they will be incorporated into the calculation model system which, on the one hand, will permit the parallel execution of that system and, on the other hand, the use of repetitive structures;

synthesis instruments at the functional level: they should make it possible automatically to derive processors devoted to the solution of specific problems;

circuits that can be tested through co-simulation: the synthesis instruments will have to include rules that will make it possible to derive structures aimed at testing;

system of aid to the design of the procedural writer: this will have to facilitate the reduction of the tests involved in refining the programs for the generation of the software AISC 2.0-FAST.

system of aid for the synthesis: it will assist within.

Techniques deriving from the area of artificial intelligence will be used widely in facilitating the system.

2. Conclusions

In this article we illustrated the different lines and the results of a research project which was partly financed by the EEC and which was aimed at making a CAD system available for the design of VLSI circuits to be used in telecommunications.

The project had 10 participating (6 French, 2 German, 2 Italian, 2 Dutch, 2 German, and 2 Italian) universities, research centers and 1 from industrial laboratories.

While it is true that this work is still far from being finished, it is no more available management system, it is clear that this experience can be called with positive conclusions.

In particular, the possibility of bringing about the collaboration of a considerable amount of highly qualified resources drawn from different disciplinary backgrounds (computer science, circuit design, mathematics, physics, etc.) did, on the one hand, make it possible to conceive a very ambitious research program that was extended so as to cover a large portion of the CAD problem complex and, on the other hand, to explore alternate routes to the solution of particular problems.

Acknowledgments

Here we must mention the persons who contributed to the project's good outcome.

The list would be too long which is why we confined ourselves to the persons who are most representative of the Italian agencies that collaborated in the project:

Dr. Ciorelli, Dr. Patrucco, and Dr. Girardi, Glandonato, and Cardini, of ENEL; Professor Antognetti, University of Genoa; Professor Sami, Milan Polytechnical College; Professor Battistini, University of Bologna; professors Zucchi and Del Corso, Turin Polytechnical Institute; and Dr. Villini and Corvi, and Dr. Capocelli, SCK; Dr. Garia, ITALTEL; and Mr. Casuso, Olivetti.

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EUROPEAN AFFAIRS

MATRA JOINS WORLD LEADER NOKIA IN CELLULAR PHONE DEAL

Matra Nokia Radionobiles Established

Helsinki HELSINGIN SANOMAT in Finnish 9 Sep 86 p 35

[Article: "Mobira Enters French Markets, Goal Is Marketing Directorship of Mobile Phones With Matra"]

[Text] Nokia's affiliate Mobira and the French firm Matra have established a joint venture in France for manufacturing and selling cellular phones in the French markets.

The name of the new company is Matra Nokia Radionobiles and with a slight majority the French hold the ownership. Nokia owns 49.8 percent of the shares, Matra owns nearly the same amount, and the small remaining percentage of shares is held by the French Indosuez Bank.

The new company will manufacture and market equipment to the newly established French national mobile phone system, Radiocom 2000.

In the opinion of Nokia President Kari Kairamo, it is more a question of marketing than production cooperation. Both companies will deliver components to Trappes in France where the assembly will take place. The agreement will not be of great significance for employment at Mobira's plants in Finland.

According to Kairamo, the joint venture will attempt to reach a sales goal of approximately 200 million francs or 150 million Finnish markkaa next year. It is anticipated that there will be "several thousand subscribers" annually to France's mobile telephone network in the next few years.

The cellular phones to be assembled at the French plant will be marketed under Matra's as well as Mobira's name. According to Mobira Managing Director Jorma Nieminen, the probability is that jointly it will be possible to acquire a greater market share by this method than by using one name. Nieminen points out that Mobira's as well as Televa's telephones are sold even in Finland.

The joint venture with Matra did not start from zero. Mobira has had various contacts with the company for 5 years already and without this relationship

it is doubtful that a joint venture agreement would have been concluded, thinks Nieminen.

According to Nieminen, France will be a large and important marketing area for cellular phones in the future. Only a year ago 80 percent of Europe's cellular phone markets was in the Nordic countries, but now construction on a system in England is progressing well, France began operations this year, and West Germany will also have a system in the near future.

No Common Standard

A different system will be put into operation in all these countries since the EC could not reach an agreement on a common standard. Of the world's seven most important mobile telephone standards five are in Europe. This does not, however, mean that Western Europe will not be able to find a unified standard sometime in the future.

In addition to its old relationship with Matra, Mobira's choice to do so with Matra was influenced by the fact that Matra is the primary French telephone telecommunication administration for building a mobile telephone system. However, the agreement between Mobira and Matra only concerns telecommunication.

The marketing situation with respect to cellular phones in the whole world is such that half of the telephones are sold in the United States, the second most important area is the Nordic countries, and then the remainder of Western Europe and Southeast Asia.

According to Nieminen, Mobira is the leading trademark in the Nordic countries and even elsewhere in Europe. In light of the sales figures for 1985, it appears that Mobira is the leader in the whole world, thinks Nieminen.

The capital stock of the newly formed company is 20 million Finnish marks. The managing director will be Jean-Francois Humbel.

Matra is a French government owned electronics company, whose sales turnover is approximately 14 billion Finnish marks. It mainly does military production. Nokia's contractual partner is Nokia Corporation, which does business in civilian production.

France's new right-wing government has decided to privatize Matra this year. The same will apply to the state owned Thomson company, which will become one of Matra-Nokia's competitors in France's mobile telecommunication market.

Nokia's Mobira Leads in Sweden

Helsinki HELSINGIN SANOMAT In Finnish 19 Sep 86 p. 14

Article by Timo Vuorela: "MOBIRA NOKIA OULU TO SWEDEN"

(Text) Stockholm--Mobira, which is owned by Nokia, has opened the market for a year become the market leader in Sweden's mobile telephone market. (Text)

it has only a very slight lead on its major Swedish competitor, the giant Ericsson Company.

The number of Nokia-Mobira cellular telephones is increasing rapidly in Sweden. In the first 8 months of the current year 23,000 new units were connected to the telecommunications network.

The increase in sales was 30 percent in comparison with the corresponding period last year. It is expected that this year's total sales will be 600--700 million kronor (425--500 million markkaa).

Mobira's share of Sweden's markets is now nearly 25 percent, said Assistant Managing Director Ake Gullberg. Mobira has been number one elsewhere in the Nordic area for a long time already.

IVV/6

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ICELAND

BROAD-BAND CABLE NETWORK ENVISIONED FOR REYKJAVIK AREA

Reykjavik MORGUNBLADID in Icelandic 22 Jul 86 p 2

[Article: "Cable Network For 20-30 Television Channels"]

[Text] The Post and Telegraph Administration Has Begun to Install Plastic Conduit in Streets

The municipalities in the metropolitan area and the Post and Telegraph Administration have recently been conducting informal discussions about the installation of a cable system in the metropolitan area which in the future might be used for general and specialized telephone service, as well as for distribution of television programs on 20-30 channels.

According to the ideas which have been discussed, the plan is for the Post and Telegraph Administration to establish a so-called "broad-band system" which will transfer messages to and from connecting points; 2-3,000 users will then be hooked up with the so-called "user system." The new cable system will make it possible to transmit material to the metropolitan area as a whole, as well as to defined parts of the area, such as individual municipalities or neighborhoods. The first step of this project is to install a plastic conduit system in the metropolitan area for telecommunication cables.

It has also been mentioned that the Post and Telegraph Administration will establish a interim system for distributing television material on five UHF channels; this material would primarily be received via satellites, as well as material received from domestic program producing companies. Such a system might replace the purchase of satellite dishes for receiving satellite transmissions in general.

"The cable system is still in its infancy," said Bergthor Halldorsson, engineer for the Post and Telegraph Administration. "Several meetings were held with representatives from the municipalities and it was decided to appoint a committee to discuss the follow-up. However, that committee has not met yet. We expect that these matters will be well on their way by next fall."

"According to a regulation issued by the Ministry of Education this winter, no one is authorized to install a cable and a distribution system unless the Post and Telegraph Administration has approved it. For this reason, we have hired one person to handle these affairs."

"We want to establish cooperation with the municipalities in installing the plastic conduit so that it will be possible to combine the installation in conjunction with various other projects, and that the installation of the conduit will in the future be a fixed part of the work involved in the preparation of new neighborhoods.

The Heating Service is working on many projects this summer and quite a number of streets are being opened up. We have therefore used the opportunity and installed conduit in these streets, which we had specially made for this purpose for example, in Hverfisgata. It is also planned to install conduit in the new Saebol section in Kopavogur. We do not know yet whether we will ever use this conduit, but we do not want to take the risk of losing one more summer with regard to projects. It is the opinion of most people that it is imperative that a solution be found in this matter as most people do not relish the idea of in the future having a satellite dish on every roof.

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CSO: 5500/2733

ICELAND

MINISTER INAUGURATES AUTOMATED LONG DISTANCE MOBILE SYSTEM

Reykjavik MORGUNBLADID in Icelandic 4 Jul 86 p 4

[Article: "Automated Long Distance Mobile Telephone System Opened: 'I Primarily View the Mobile Telephone As a Safety Factor,' Said Minister of Communications Matthias Bjarnason"]

[Text] An Automated NMT mobile telephone system was opened here yesterday which is the same system that is used elsewhere in the Nordic countries where there are about 300,000 mobile telephones in use. This mobile telephone system is a joint Nordic design and is the only system that can be connected with other countries. The mobile telephones are for sale on the general market and the price is from 80,000 to 110,000 kronur. The initial cost is 3,500 kronur and the rate is 6 kronur per minute nationwide.

Minister of Communications Matthias Bjarnason opened the new system by calling Prime Minister Steingrímur Hermannsson, who is also former minister of communications. Minister Bjarnason said in a speech he gave at the opening ceremony that he primarily viewed the mobile telephone system as a safety factor, although other people preferred to call it luxury. Now, rescue squads, for example, and especially seamen could be in better contact with their homes and relatives than was possible before. Haraldur Sigurdsson, chief engineer with the Post and Telegraph Administration, said that seven types of mobile telephones are available in the country. They are all different and offer various options, although they are similar in all main features, as all have to meet certain standards. He said that the system would cost the Post and Telegraph Administration a total of 150 million kronur and 100 million kronur had already been spent.

The area code for the mobile telephone system is 985 and the mobile telephone numbers will all have five digits and they will all begin with the figure 2. When dialing from a regular telephone to a mobile telephone, it is necessary to dial the area code 985 first and then the mobile telephone number. When dialing from a mobile telephone, the procedure is exactly like dialing from a regular phone except the area code is always dialed first, with the exception of the special service numbers of the telephone system which begin with 0.

The central exchanges have been installed in the following places: Reykjavik; Skalahell; Akranes; Borgarnes; Skanaryrabunga; Grof; Stykkisholmur; Flatey; Budardalur; Thingeyri; Bildudalur; Botnsheidi; Baejum; Thorbjarnarfjall; Eyrarbakki; Burfell and Hafell. Testing has been conducted during the past weeks with good results, according to the spokesman of the Post and Telegraph Administration. The areas from Isafjordardjup and east of Vik in Myrdal to Hafell have good connections, but the service area will increase soon and several mother stations will be put in use in several places in the northern part of the country and in the Austfirfir.

All telephone numbers in the country and outside the country can be dialed from the mobile telephones in the service areas. It is possible to call to a mobile telephone from all domestic telephone numbers and foreign telephone numbers if the mobile telephone is within the service area. It is hoped that by the middle of the summer, testing of a total of 10 mother stations in all four parts of the country will have been finished.

Mobile telephone users will have the choice of various special services. One service will be transfer of calls to another telephone number when the mobile telephone is disconnected, and another service will be that if the call is not answered within 20 seconds, the station will transfer the call to another number previously selected by the mobile telephone user. It is also possible to make cancellation of overseas calls dialed from the respective mobile phone at the station. Other services will be available in the future, for example, automatic and manual message services; it will be possible to use Icelandic mobile telephones elsewhere in the Nordic countries and mobile telephone pay phones will be available as well. Also available will be computerized memory of telephone numbers, locked time meters, queues and itemized bills.

The plan is to put 10 additional mother stations into use next year, and the service area for the mobile telephone system will cover all the densely populated areas and main highways by the end of the year. At a later date, mother stations will be installed in areas where they will be considered to be needed and the number of service lines will be increased accordingly.

END

CGO: 1500/2201

ITALY

BRIEFS

ITALCABLE INAUGURATES EUROPE-ASIA CABLE LINK--Rome, 18 September 1986. ITALCABLE [Italian Underwater Telegraph Cable Company], a company in the IRI-STET [Industrial Reconstruction Institute--Telephone Finance Corporation] Group, and the National Telephones State Board, together with the representatives of another 21 European, Arab, and Asian countries, participated in putting together an integrated telecommunications telephone cable system called SEA-ME-WE which constitutes the first artery of this kind directly to link Europe to South East Asia through the Indian Ocean. The project cost a total of \$400 million and is made up of eight support points, respectively, at Singapore, Indonesia, Sri-Lanka, Djibouti, Saudi Arabia, Egypt, Palermo, and Marseille. ITALCABLE is furthermore directly responsible--together with the French and Egyptian managers--for putting in the project's two Mediterranean sections which will link Palermo, respectively, to France and Egypt. The sophisticated transmission plant will then be further boosted by the simultaneous construction, in the Far East, of two additional links; the first one will reach Hong Kong and Taiwan from Singapore and the other one will reach Australia through Indonesia. [Text] [Rome TELEINFORMATICA 2000 in Italian 15-18 Sep 86 p 1] 5058

SIP 'DATA-NETWORKS'--Milan, 22 September 1986. The sale of connections to the new SIP [Italian Telephone Company] network-CDN [direct numerical links] will begin next December; the new facility was created to offer company users inter-city numerical links which are "specifically set aside" and which are specialized for data transmission. By the end of the year, the new "CDN" network will serve 80 localities with a capacity for 5,000 connections. GAZZETTA UFFICIALE will publish the ministerial decree that will establish the official rates for the new service. [Text] [Rome TELEINFORMATICA 2000 in Italian 18-22 Sep 86, p 1] 5058

CSO: 5500/2413

NORWAY

ELEKTRISK BUREAU GROUP EXPANDS IN SIZE, ENTERS NEW FIELDS

Mobile Phones, Digital Telex

Oslo AFTENPOSTEN in Norwegian 18 Aug 86 p 34

[Article by Kjell Aaserud: "EB on the Right Track"]

[Text] In the first six months, the operating income of the EB group increased 30 percent from 1,130 to 1,460 million kroner, the operating profit was 85 million kroner, ordinary income after financial transactions 56 million kroner, while the final six months of last year were negative. A positive profit development is expected in the second six months as well, which generally has a stronger impact than the first six months.

Following the Plans!

"We can only state that we are on course; that the plans are being followed," Almskog tells AFTENPOSTEN. The positive aspect is that all main areas are meeting their budget goals. Previously there was always one which pulled the figures down. We have taken care of large unprofitable units. Highly skilled employees are being moved from unprofitable sections to areas which yield satisfactory income, so that the effect is doubled. Within the company we have been focussing strongly on the need for profitability. The employees have picked up the "baton". In other words, we have more highly motivated employees. But in addition to improving profitability we have another main goal--to enter Norway with digital telephone centers."

On Course Again?

"And now EB has come in the back door after the delay with the system 12.?"

"In any case, we got a foot in the door. We received an order for 50,000 lines after the AXE-system, we received substantial orders for mobile centers, and a digital telex center for Northern Norway. The first digital telephone center from us will go to Frogner in Oslo and will be operational towards the end of November. We will do everything we can that at least we will not have any delays. We will do what we can to get "on track" again in the Norwegian telenetwork."

"But I will readily admit that it will take hard work to get there," says Almqvist who feels that the starting position is a good one. "What we are doing in the field of telecommunications is based on the AXE-system. It has its best reference in its worldwide distribution with 8.6 million installed lines, more than 14 million lines including those which are on order in altogether 75 countries. Although L.M. Ericsson which developed AXE has gradually reduced its ownership interests in EB the cooperation between us has developed further. This is true of, for instance, a new generation of house telephone centers, where also Televerket's commercial communication (TRK) is involved in a development agreement."

Strong in Aircraft Control

"EB Telecom will now deliver communications systems for air traffic control centers at airports in Belgrade and Zagreb in Yugoslavia. They will be operational next summer and will mean total deliveries amounting to 70 million kroner. We for our part believe that our system is among the best in the world. It is our hope that this can develop into a large business area in the coming years."

The previous EB Scanword, which cost the company a lot of money, has been redesigned extensively. We are again left with what we are really good at--communications--in the EB information systems. The development there has more than met expectations. Sales are increasing 80-90 percent and will reach 100 million kroner of usable income on an annual basis.

In the area of defense communications we are also moving ahead. In this area we have an excellent cooperation with Standard Telefon and Kabelfabrik and with L.M. Ericsson. In this field we alone have backorders--nationally and internationally--of between 400 and 500 million kroner."

Goal not Reached?

"From what I have said here follows that EB views the development with optimism. But at the same time we are prepared to face tough times ahead. The economic development will play a part, but also the situation that we ourselves will never be finished with reconstructing and improving."

"Why didn't it buy Volvo Kabel?"

"A brief answer: The price was too high for us to justify it toward ourselves and our shareholders."

"EB had a better profit and stock exchange development than STK. Will the buy-in agreement be as extensive for EB as for STK?"

"It is not possible to answer this question. On the other hand, I do believe that EB will overcome the technical difficulties."

Friendly Takeover Adds Strength

Oslo AFTENPOSTEN in Norwegian 30 Aug 86 p 36

[Article by Kjell Aaserud: "Electrical Giants Merge"]

[Text] In the new year, Elektrisk Bureau (EB) will take over Elektro Union (EU). This will result in one of Norway's largest industrial firms with approximately 9,000 employees and sales of approximately six billion kroner in 1987--definitely the country's largest firm in electrical engineering/electronics. It is expected that EB must pay the owner of EU, Investa, approximately 750 million kroner, which corresponds to the asset value.

To finance the purchase, EB will increase its present capital stock by 158 million kroner through a public subscription at a premium of 4-5 times this fall, which will bring in 250-300 million kroner. The rest--400-500 million kroner--will be financed through loans.

It will be a friendly takeover, and one can say already now that it will be difficult to stop it. EB must call a special shareholders' meeting to get the capital stock increase approved. As sole owner Investa has full control of Elektro Union, and with 59 percent of the capital stock in EB. EU managing director Oskar A. Munch will be nominated as chairman of the board, while Kjell E. Almskog will continue as company president.

Will Become a Flagship

It was Kjell E. Almskog who took the initiative in the takeover of Elektro Union. As a reason he states that EB and EU were the only larger Norwegian-owned companies in their areas.

"But we are small on an international scale. And we wanted to do something about that. The new EB will become a flagship in Norway and abroad. As a starting point EB will have sales of 1.6 billion kroner (25 percent) outside Norway in the form of exports or sales from company-owned production facilities in nine countries outside Norway," Almskog says.

"EB has more than met the expectations which were raised by the purchase, for instance, through improved profits," says Oskar A. Munch. "Now we want to obtain great synergetic effects through the utilization of each other's resources. Incidentally, we informed the industry minister who is very positive towards the fact that we want to get a still stronger Norwegian-owned unit in electrical engineering/electronics."

Investa's entry into EB last year was met with strong resistance from most employee groups. According to managing director Kjell E. Almskog the attitude today is completely different.

"We have motivated employees, and I am pretty sure that the takeover of EU will be considered as another proof that we are on the right track. The measures carried out to improve efficiency which are not complete yet,

increased efforts, and better economic results led us to take this initiative," says Almskog who reveals that this year EB will show a profit of between 130 and 160 million kroner, while EU will show a profit of between 90 and 95 million kroner. What EB will finally pay for EU depends on the financial statements at year's end.

Long-Term Efforts

According to Almskog the takeover of EU will improve EB's profit by 30 to 60 million kroner in the takeover year (1987).

"But the takeover is primarily a step in EB's long-term development," he points out. In international competition our resources are too small and the product line is too limited. Internally, we have common business areas where we can make gains through a better structure.

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TURKEY

BRIEFS

SATELLITE GROUND STATION CONTRACT--Ankara (ANKA)--A contract for the purchase of a TV satellite ground station has been signed between the Turkish Post, Telephone, and Telegraph Administration [PTT] and the U.S. firm AFRTS. The agreement was cosigned for Turkey by Emin Baser, director general of the PTT, and Tunca Toskay, director general of the Turkish Radio and Television Corporation [TRT], and for AFRTS by Jules Kadesh, a representative of the firm. Speaking at the signing ceremony, PTT Secretary General Baser said that as the national transmission could not be received sufficiently well in all parts of Turkey, border areas were under the influence of foreign transmissions. He said: "Use of the satellite facility will allow us to transmit our television wherever we want, with high-quality reception in all parts of the country; it will allow us to increase the number of TV channels and enable their clear reception throughout Turkey." Baser noted that up to six satellite TV channel relays will be possible; he said that programs will be relayed by a main ground station to be established in Ankara to all parts of Turkey and retransmitted locally through small satellite ground stations. Baser added that the system to be established will also create opportunities to provide services via satellite for minerals exploration, for pre-tremor and scientific research, and for educational and other mass communications. According to an agreement signed by the PTT and the TRT, the construction, maintenance, and repair of the ground receiving stations will be carried out by the PTT, which in the initial phase will acquire 100 ground receiving stations and put them into service in localities required by the TRT. [Text] [Istanbul CUMHURIYET in Turkish 12 Jul 86 p 14] 13184/12859

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